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UNIVERSITY OF COLORADO BULLETIN

Vol. XVI, No. 3 General Series No. 93

Published Monthly by the Regents of the University of Colorado.
Entered at the Post Office, Boulder, Colorado, as second-class mail matter.

CATALOGUE, 1915-1916



1
BOULDER, COLORADO, MARCH, 1916

THE
PAPER BOOK
STORE

THE
LIBRARY OF THE
MUSEUM OF NATURAL HISTORY
AND
ZOOLOGY
OF THE
CITY OF LONDON
1871

1977

JOHN O'BRIEN

YR. 1977

UNIVERSITY OF COLORADO BULLETIN

Vol. XVI, No. 3 General Series No. 33

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BOULDER, COLORADO, MARCH, 1916

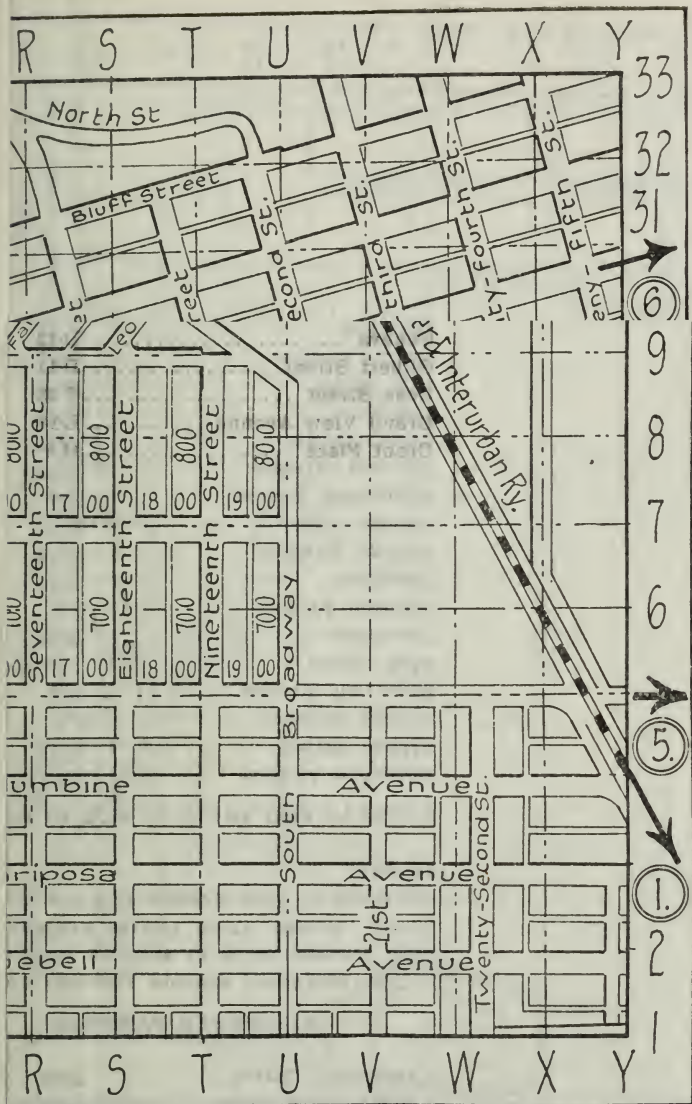
The
University of Colorado
Catalogue, 1915-1916

With
Announcements for
1916-1917



Boulder, Colorado, March, 1916

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City of Boulder, Colorado.

Arranged from City Engineer's Map.

Scale; One division = One-sixteenth of a mile.
For key and directory see other side.

Colorado Chautauqua.

BOULDER, COLORADO

NUMBERED STREETS.

(Running Approximately North and South.)

Fourth Street	.....A-29
Fifth Street	.....C-18, C-22, B-28
Sixth Street	.....E-11, D-22, D-26
Seventh Street	.....F-8, F-22, E-27
Eighth Street	.....G-8, G-23, F-27
Ninth Street	.....I-8, H-19, G-28
Tenth Street	.....K-8, G-30, H-26
Eleventh Street	.....L-8, J-23
Twelfth Street	.....M-8, K-24
Thirteenth Street	.....N-8, M-21
Fourteenth Street	.....O-8, M-26
Fifteenth Street	.....P-8, O-23
Sixteenth Street	.....Q-8, P-23
Seventeenth Street	.....R-8, Q-21
Eighteenth Street	.....S-6, R-20
Nineteenth Street	.....T-8, S-25
Twentieth Street	.....T-22, T-12
Twenty-first Street	.....V-2, U-22, U-27
Twenty-second Street	.....W-2, V-21, U-30
Twenty-third Street	.....X-20, W-27
Twenty-fourth Street	.....Y-19, X-28
Twenty-fifth Street	.....X-32

NUMBERED AVENUES.

The numbered avenues run east and west. First Avenue being at extreme north of map (P-33). Second, Third, Fourth, Fifth and Sixth are north of First Avenue, and are not shown on map.

STREETS AND AVENUES NOT NUMBERED.

Arapahoe Avenue	.....C-19, J-20, O-21
Athens Street	.....N-19
Aurora Avenue	.....L-9
Blue Bell Avenue	.....R-2
Bluff Street	.....L-31, T-32
Broadway	.....M-17
Cascado Avenue	.....L-7
Cleveland	.....D-10
College Avenue	.....K-13
College Street	.....Q-32
Columbine Avenue	.....R-4
Concord Avenue	.....B-30
Dewey Street	.....B-31
Dudley	.....R-11
Elm Street	.....B-32
Euclid Avenue	.....L-11, R-11
Fairview	.....R-9
Geneva	.....D-12
Gilbert Street	.....D-11
Goss Street	.....T-23
Grand View Avenue	.....L-18
Grant Place	.....H-8

Streets and Avenues Not Numbered—Cont'd.

Grove Street	.....T-22
Green Mountain	.....T-10
Hapgood Street	.....C-14
High Street	.....L-30
Highland Avenue	.....B-26
Hill Street	.....K-28
Lincoln Place	.....J-8
Mapleton Avenue	.....E-28
Marine Street	.....C-18, I-18, O-20
Mariposa Avenue	.....R-3
Marshall	.....B-16
Maxwell Avenue	.....E-29
Mountain Avenue	.....B-24
North Street	.....B-32, H-32, S-32
Palmer Street	.....T-16
Park Avenue	.....L-5
Pearl Street	.....L-25
Pennsylvania Avenue	.....J-14, F-14, U-14
Pine Street	.....B-26, K-27
Pleasant Street	.....J-16
Portland Place	.....G-31
Regent Street	.....S-11
South Street	.....X-26
South Broadway	.....U-5, P-12
Spruce Street	.....K-26
University Avenue	.....G-16, T-16
Walnut Street	.....L-24
Water Street	.....I-22

UNIVERSITY OF COLORADO CAMPUS.

Athletic Field (23)	.....R-13
Athletic Field, New	.....W-18
Chemistry Building (9)	.....R-14
Denison Memorial Building (14)	.....P-13
Engineering Building (7)	.....R-15
Engineering Shops (17)	.....S-13
Geology Building (11)	.....P-13
Guggenheim Law Building (6)	.....P-14
Gymnasium (10)	.....R-14
Hale Science Building (2)	.....O-16
Hospital, University (19)	.....S-17
Isolation Hospital (21)	.....R-17
Law Building (6)	.....P-14
Liberal Arts Building (3)	.....P-15
Library (8)	.....P-14
Mackay Auditorium (4)	.....Q-18
Medical Building (16)	.....Q-13
Men's Building (13)	.....P-13
Men's Dormitory (6)	.....Q-16
Nurses' Cottage (20)	.....R-17
Power Plant (12)	.....T-13

University of Colorado Campus—Cont'd.

President's House (1)	.....N-16
Science Building (11)	.....P-13
Shops, Engineering (17)	.....S-13
Stable (16)	.....Q-12
Station, University (24)	.....S-15
University Hospital (19)	.....S-17
University Station (24)	.....S-16
Women's Building (12)	.....O-14

RAILROADS AND HIGHWAYS.

- *1 Colorado and Southern (steam) and Denver and Interurban (electric) railroads to Denver (29 mi.), Eldorado Springs (8.7 mi.).
- *2 Colorado and Southern (steam) Railway to Greeley (70 mi.), Fort Collins (46 mi.), Cheyenne (91 mi.); Union Pacific (steam) Railroad to Brighton (27.7 mi.), Greeley (79.7 mi.).
- *3 Denver and Interurban (electric) Railroad to Denver (29 mi.).
- *4 Denver, Boulder and Western (steam) Railroad to Sunset (18.3 mi.), Sugar Loaf Mountain (17.3 mi.), Glacier Lake (22.4 mi.), Bluebird (28.7 mi.), Eldora (33.4 mi.), Ward (26.1 mi.), Nederland (32.0 mi.).
- *5 Automobile Road to Denver (32 mi.).
- *6 Automobile Road to Valmont (3.6 mi.). Longmont (17 mi.).
- *7 Automobile Road to Estes Park, the entrance to Rocky Mountain National Park, by way of Lyons and North St. Vrain or South St. Vrain (38.6 and 56 mi.); by way of Ward and Allen's Park (37 mi.).
- *8 Automobile Road up Boulder Canon to "Alps" (4 mi.), Boulder Falls (12 mi.), Nederland (20 mi.), Eldora (24 mi.), Ward (22 mi.).
- *9 Automobile Road to Denver (34.6 mi.), Longmont (22 mi.), Loveland (29.7 mi.), Fort Collins (62 mi.), Greeley (61.2 mi.), Cheyenne (97.6 mi.).
- *10 Wagon Road up Flagstaff Mountain to Summit (4 mi.), Kossler's Ranch (6 mi.).
- *11 Wagon Road up Blue Bell Canon to Bluebell Springs (1 mi.), Roynl Arch (4 mi.), Camel's Back (1 mi.).
- *12 Automobile Road up Sunshine Canon to Sunshine (8 mi.), Rowens (12 mi.), Gold Hill (12 mi.), Ward (20 mi.).

*The starred figures refer to the figures in circles on map margins.

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University of Colorado Campus—Cont'd.

ident's House (1).....N-16
 nce Building (11)P-13
 os, Engineering (17)S-13
 le (15)Q-12
 ion, University (24)S-15
 iversity Hospital (19).....S-17
 iversity Station (24)S-15
 en's Building (12)O-14

RAILROADS AND HIGHWAYS.

Colorado and Southern (steam) and Den-
 ver and Interurban (electric) railroads to
 Denver (29 mi.), Eldorado Springs (8.7
 mi.).

Colorado and Southern (steam) Railway
 to Greeley (70 mi.), Fort Collins (45 mi.),
 Cheyenne (91 mi.); Union Pacific (steam)

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1916

CALENDAR

1916

	Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.		Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.		Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
Jan.	2	3	4	5	6	7	8	May	7	8	9	10	11	12	13	Sept.	3	4	5	6	7	8	9
	9	10	11	12	13	14	15		14	15	16	17	18	19	20		10	11	12	13	14	15	16
	16	17	18	19	20	21	22		21	22	23	24	25	26	27		17	18	19	20	21	22	23
	23	24	25	26	27	28	29		28	29	30	31	--	--	--		24	25	26	27	28	29	30
	30	31	--	--	--	--	--	June	--	--	--	--	1	2	3	Oct.	1	2	3	4	5	6	7
Feb.	6	7	8	9	10	11	12		4	5	6	7	8	9	10		8	9	10	11	12	13	14
	13	14	15	16	17	18	19		11	12	13	14	15	16	17		15	16	17	18	19	20	21
	20	21	22	23	24	25	26		18	19	20	21	22	23	24		22	23	24	25	26	27	28
	27	28	29	--	--	--	--	July	25	26	27	28	29	30	--	Nov.	29	30	31	--	--	--	--
Mar.	5	6	7	8	9	10	11		2	3	4	5	6	7	8		5	6	7	8	9	10	11
	12	13	14	15	16	17	18		9	10	11	12	13	14	15		12	13	14	15	16	17	18
	19	20	21	22	23	24	25		16	17	18	19	20	21	22		19	20	21	22	23	24	25
	26	27	28	29	30	31	--		23	24	25	26	27	28	29		26	27	28	29	30	--	--
	--	--	--	--	--	--	--	Aug.	30	31	--	--	--	--	--	Dec.	--	--	--	--	--	--	--
Apr.	2	3	4	5	6	7	8		6	7	8	9	10	11	12		3	4	5	6	7	8	9
	9	10	11	12	13	14	15		13	14	15	16	17	18	19		10	11	12	13	14	15	16
	16	17	18	19	20	21	22		20	21	22	23	24	25	26		17	18	19	20	21	22	23
	23	24	25	26	27	28	29		27	28	29	30	31	--	--		24	25	26	27	28	29	30
	30	--	--	--	--	--	--		--	--	--	--	--	--	--		31	--	--	--	--	--	--

1917

CALENDAR

1917

	Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.		Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.		Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
Jan.	7	1	2	3	4	5	6	May	--	--	1	2	3	4	5	Sept.	2	3	4	5	6	7	8
	14	15	16	17	18	19	20		6	7	8	9	10	11	12		9	10	11	12	13	14	15
	21	22	23	24	25	26	27		13	14	15	16	17	18	19		16	17	18	19	20	21	22
	28	29	30	31	--	--	--		20	21	22	23	24	25	26		23	24	25	26	27	28	29
	--	--	--	--	--	--	--	June	27	28	29	30	31	--	--	Oct.	30	--	--	--	--	--	--
Feb.	4	5	6	7	8	9	10		3	4	5	6	7	8	9		--	1	2	3	4	5	6
	11	12	13	14	15	16	17		10	11	12	13	14	15	16		7	8	9	10	11	12	13
	18	19	20	21	22	23	24		17	18	19	20	21	22	23		14	15	16	17	18	19	20
	25	26	27	28	--	--	--	July	24	25	26	27	28	29	30		21	22	23	24	25	26	27
	--	--	--	--	--	--	--		--	--	--	--	--	--	--	Nov.	28	29	30	31	--	--	--
Mar.	4	5	6	7	8	9	10		1	2	3	4	5	6	7		--	4	5	6	7	8	9
	11	12	13	14	15	16	17		8	9	10	11	12	13	14		11	12	13	14	15	16	17
	18	19	20	21	22	23	24		15	16	17	18	19	20	21		18	19	20	21	22	23	24
	25	26	27	28	29	30	31		22	23	24	25	26	27	28		25	26	27	28	29	30	--
	--	--	--	--	--	--	--	Aug.	29	30	31	--	--	--	--	Dec.	--	--	--	--	--	--	--
Apr.	1	2	3	4	5	6	7		--	--	--	1	2	3	4		2	3	4	5	6	7	8
	8	9	10	11	12	13	14		5	6	7	8	9	10	11		9	10	11	12	13	14	15
	15	16	17	18	19	20	21		12	13	14	15	16	17	18		16	17	18	19	20	21	22
	22	23	24	25	26	27	28		19	20	21	22	23	24	25		23	24	25	26	27	28	29
	29	30	--	--	--	--	--		26	27	28	29	30	31	--		30	31	--	--	--	--	--

ANNOUNCEMENTS

1916.

- Jan. 19, Wednesday ..Meeting of Board of Regents.
Jan. 31, MondaySecond Semester begins.
Feb. 12, SaturdayLincoln's Birthday.
Feb. 22, TuesdayWashington's Birthday (Holiday).
Apr. 1, Saturday to
Apr. 9, SundaySpring Recess.
Apr. 19, Wednesday ..Meeting of Board of Regents.
Apr. 21, FridayArbor Day (Holiday).
May 20, SaturdayHigh-School Day.
May 30, TuesdayDecoration Day (Holiday).
June 2, FridayAll examinations completed.
June 3, SaturdayPhi Beta Kappa Exercises.
 Sigma Xi Exercises.
June 4, SundayBaccalaureate Address.
June 5, MondaySenior Class Play.
 Meeting of Board of Regents.
June 6, TuesdayClass Day Exercises and Parade.
 President's Reception.
 Alumni Banquet and Reception.
 Senior Promenade.
June 7, Wednesday ..Commencement.
June 8, ThursdaySummer Vacation begins.
June 26 to August 5....Summer Session.
Sept. 4, MondayMeeting of Board of Regents.

ACADEMIC YEAR, 1916-1917

- Sept. 11, MondayFirst Semester begins; Registration (Registration begins Friday, Sept. 8).
Sept. 12, TuesdayAssembly of Students at 11:00.
Oct. 12, ThursdayColumbus Day (Holiday).
Nov. 8, Wednesday ..Meeting of Board of Regents.
Nov. 30, ThursdayThanksgiving Day (Holiday).
Dec. 1, FridayHoliday.
Dec. 23, Saturday to
Jan. 7, SundayWinter Recess.

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1917.

- Jan. 17, Wednesday ..Meeting of Board of Regents.
 Jan. 29, MondaySecond Semester begins.
 Feb. 12, MondayLincoln's Birthday (Holiday).
 Feb. 22, ThursdayWashington's Birthday (Holiday).
 Mar. 31, Saturday to
 Apr. 8, SundaySpring Recess.
 Apr. 18, Wednesday ..Meeting of Board of Regents.
 Apr. 20, FridayArbor Day (Holiday).
 May 19, SaturdayHigh-School Day.
 May 30, Wednesday ..Decoration Day (Holiday).
 June 1, FridayAll examinations completed.
 June 2, SaturdayPhi Beta Kappa Exercises.
 Sigma Xi Exercises.
 June 3, SundayBaccalaureate Address.
 Annual Address before the Christian
 Associations.
 June 4, MondaySenior Class Play.
 Meeting of Board of Regents.
 June 5, TuesdayClass Day Exercises and Parade.
 President's Reception.
 Alumni Banquet and Reception.
 Senior Promenade.
 June 6, Wednesday ..Commencement.
 June 7, ThursdaySummer Vacation begins.
 June 25 to August 4....Summer Session.
 Sept. 3, MondayMeeting of Board of Regents.

BOARD OF REGENTS

WILLIAM J. KING.....	Villa Grove
Term expires, 1916.	
ANNA L. WOLCOTT VAILE.....	Denver
Term expires, 1916.	
CHARLES R. DUDLEY.....	Denver
Term expires, 1918.	
JAMES B. RAGAN.....	Denver
Term expires, 1918.	
MINNIE LAHM HARDING.....	Canon City
Term expires, 1920.	
CLIFFORD C. PARKS.....	Glenwood Springs
Term expires, 1920.	

OFFICERS OF THE BOARD

LIVINGSTON FARRAND.....	Boulder	President
FRANK H. WOLCOTT.....	Boulder	Secretary
CHARLES H. CHENEY.....	Boulder	Treasurer

COMMITTEES OF THE BOARD

EXECUTIVE—Mrs. Vaile, Messrs. King, Farrand.

AUDITING—Messrs. Ragan, Dudley, Farrand.

BUILDING AND GROUNDS—Mr. King, Mrs. Vaile, Mr. Farrand.

FINANCE—Messrs. Parks, Ragan.

LIBRARY—Mr. Dudley, Mrs. Harding, Mr. Smith.

INSTRUCTORS—Mr. Farrand, Mrs. Vaile, Mr. Ragan.

ADVISORY BOARD*

	Town.	County.
GEORGE A. GARARD.....	Brighton	Adams Arapahoe
ALLEN J. NOSSAMAN, M.D.....	Pagosa Springs.....	Archuleta
WILLIAM HOOKER.....	Springfield	Baca
P. G. SCOTT.....	Las Animas.....	Bent
ALLEN M. LAMBRIGHT.....	Las Animas.....	Bent
THOMAS BUTLER.....	Longmont	Boulder
GEORGE H. CURFMAN, M.D.....	Salida	Chaffee
E. P. HICKMAN.....	Cheyenne Wells.....	Cheyenne
ALBERT A. STOVER.....	Idaho Springs.....	Clear Creek
FREDERICK W. SWANSON.....	Alamosa	Conejos
CHARLES GROENENDYKE.....	San Luis.....	Costilla Crowley
JOHN H. LEARY.....	Westcliffe	Custer
BURTON P. SMITH.....	Delta	Delta
GUSTAVE C. BARTELS.....	Denver	Denver
CLAYTON C. DORSEY.....	Denver	Denver
IRVING HALE.....	Denver	Denver
HORACE N. HAWKINS.....	Denver	Denver
EDWIN H. PARK.....	Denver	Denver
A. DUPONT PARKER.....	Denver	Denver
FRANK E. SHEPARD.....	Denver	Denver
JOHN W. SPRINGER.....	Denver	Denver
THOMAS B. STEARNS.....	Denver	Denver
THOMAS L. WILKINSON.....	Denver	Denver
CHARLES MACALLISTER WILLCOX....	Denver	Denver Dolores
JOHN ANDERSON.....	Castle Rock.....	Douglas
JAMES DILTS.....	Eagle	Eagle
WILLIAM D. REILLY.....	Kiowa	Elbert
JOSEPH F. HUMPHREY.....	Colorado Springs.....	El Paso
ROBERT KERR.....	Colorado Springs.....	El Paso
MATT N. LINES.....	Canon City.....	Fremont

* The members of the Advisory Board are appointed by the Regents for a term of one year. The service is without compensation. Annual meetings of the Advisory Board are held at the University, Tuesday and Wednesday of Commencement Week.

	Town.	County.
JAMES G. JOHNSTON.....	<i>Florence</i>	<i>Fremont</i>
BARNETTE T. NAPIER.....	<i>Glenwood Springs</i>	<i>Garfield</i>
CHASE WITHROW.....	<i>Central City</i>	<i>Gilpin</i>
DAVID P. HOWARD.....	<i>Sulphur Springs</i>	<i>Grand</i>
JOHN A. LEHRITTER.....	<i>Gunnison</i>	<i>Gunnison</i>
BENJAMIN F. CUMMINGS, M.D.....	<i>Lake City</i>	<i>Hinsdale</i>
CHARLES HAYDEN.....	<i>Walsenburg</i>	<i>Huerfano</i>
*THOMAS D. BAIRD, M.D.....	<i>Walsenburg</i>	<i>Huerfano</i>
OWEN S. CASE.....	<i>Walden</i>	<i>Jackson</i>
WILLIAM G. SMITH.....	<i>Golden</i>	<i>Jefferson</i>
RAYMOND MILLER.....	<i>Galatea</i>	<i>Kiowa</i>
WILLIAM D. SELDER.....	<i>Burlington</i>	<i>Kit Carson</i>
CHARLES CAVENDER.....	<i>Leadville</i>	<i>Lake</i>
CHARLES A. PIKE.....	<i>Durango</i>	<i>La Plata</i>
FRANK J. ANNIS.....	<i>Fort Collins</i>	<i>Larimer</i>
JOSEPH C. BELL.....	<i>Trinidad</i>	<i>Las Animas</i>
EDWARD H. DAY.....	<i>Trinidad</i>	<i>Las Animas</i>
EUSEBIO CHACON.....	<i>Trinidad</i>	<i>Las Animas</i>
		<i>Lincoln</i>
L. K. PARR.....	<i>Padroni</i>	<i>Logan</i>
HORACE T. DELONG.....	<i>Grand Junction</i>	<i>Mesa</i>
JOHN A. BILES, M.D.....	<i>Creede</i>	<i>Mineral</i>
ROBERT M. RICHARDSON.....	<i>Craig</i>	<i>Moffat</i>
LEONARD H. CLARK, M.D.....	<i>Mancos</i>	<i>Montezuma</i>
J. F. COLEMAN, M.D.....	<i>Montrose</i>	<i>Montrose</i>
FREDERICK W. LOCKWOOD, M.D.	<i>Fort Morgan</i>	<i>Morgan</i>
ROBERT W. PATTERSON.....	<i>La Junta</i>	<i>Otero</i>
G. M. DAMERON.....	<i>La Junta</i>	<i>Otero</i>
WILLIAM W. ROWAN, M.D.....	<i>Ouray</i>	<i>Ouray</i>
		<i>Park</i>
R. G. McKIBBEN.....	<i>Holyoke</i>	<i>Phillips</i>
		<i>Pitkin</i>
JOHN C. HORN.....	<i>Lamar</i>	<i>Prowers</i>
C. B. THOMAN.....	<i>Lamar</i>	<i>Prowers</i>
J. K. DOUGHTY.....	<i>Lamar</i>	<i>Prowers</i>
ALVA ADAMS.....	<i>Pueblo</i>	<i>Pueblo</i>
P. J. DUGAN.....	<i>Pueblo</i>	<i>Pueblo</i>

* Died, March 15, 1916.

	Town.	County.
JAMES LYTTLE.....	<i>Meeker</i>	<i>Rio Blanco</i>
ROBERT G. BRECKENRIDGE.....	<i>Monte Vista</i>	<i>Rio Grande</i>
BENJAMIN F. NIESZ.....	<i>Steamboat Springs</i>	<i>Routt</i>
CHARLES TARBELL.....	<i>Saguache</i>	<i>Saguache</i>
JOHN T. JOYCE.....	<i>Silverton</i>	<i>San Juan</i>
STEPHEN A. BAILEY.....	<i>Telluride</i>	<i>San Miguel</i>
BERTRAND D. PARKER, JR.....	<i>Julesburg</i>	<i>Sedgwick</i>
CLARENCE O. FINCH.....	<i>Julesburg</i>	<i>Sedgwick</i>
WILLIAM F. FORMAN.....	<i>Breckenridge</i>	<i>Summit</i>
GRIFFITH R. LEWIS.....	<i>Cripple Creek</i>	<i>Teller</i>
NELSON FRANKLIN.....	<i>Victor</i>	<i>Teller</i>
HAROLD D. THOMPSON.....	<i>Cripple Creek</i>	<i>Teller</i>
EGBERT MORE.....	<i>Akron</i>	<i>Washington</i>
GEORGE D. STATLER.....	<i>Greeley</i>	<i>Weld</i>
THOMAS B. GROVES.....	<i>Wray</i>	<i>Yuma</i>

COLLEGES AND SCHOOLS OF THE UNIVERSITY

I. COLLEGE OF LIBERAL ARTS:

Leading to the degree A.B.

College of Commerce:

Leading to the degree A.B. and special certificate.

College of Education:

Leading to the degree A.B. and special certificate.

School of Social and Home Service:

Leading to certificate of work done.

II. COLLEGE OF ENGINEERING:

Civil Engineering, leading to the degree B.S. (C.E.).

Electrical Engineering, leading to the degree B.S. (E.E.).

Mechanical Engineering, leading to the degree B.S. (M.E.).

Chemical Engineering, leading to the degree B.S. (Ch.E.).

III. GRADUATE SCHOOL:

Leading to the degrees Ph.D. and A.M.; M.S., C.E., E.E., and M.E.; D.Oph., D.P.H., M.S. (P.H.), and M.S. (San. Eng.).

IV. SCHOOL OF MEDICINE:

Leading to the degree M.D.

V. SCHOOL OF LAW:

Leading to the degree LL.B.

VI. COLLEGE OF PHARMACY:

Leading to the degrees Ph.C. and B.S. (Phar.).

VII. SUMMER SESSION:

VIII. UNIVERSITY EXTENSION DIVISION:

Department of Instruction:

Correspondence-Study.

Academic Instruction.

Vocational Instruction.

Department of Public Service:

Lectures and Visual Instruction.

Community Welfare.

Library Extension.

Publications.

GENERAL FACULTY*

LIVINGSTON FARRAND, A.M., M.D., LL.D., President.

JAMES H. BAKER, A.M., LL.D., President, Emeritus.

J. RAYMOND BRACKETT, Ph.D., Dean of the Graduate School; Professor of Comparative and English Literature.

LUMAN M. GIFFIN, M.D., Professor of Surgery.

IRA M. DELONG, A.M., LL.D., Professor of Mathematics.

JOHN CHASE, A.B., M.D., Professor of Ophthalmology and Otology.

THOMAS E. TAYLOR, A.B., M.D., Professor of Obstetrics, Emeritus.

ALBERT A. REED, LL.B., Professor of Law.

WILLIAM B. CRAIG, M.D., Professor of Surgery.

E. BARBER QUEAL, M.D., Professor of Physiology.

FRED B. R. HELLEMS, Ph.D., LL.D., Dean of the College of Liberal Arts; Professor of Latin.

GEORGE H. CATTERMOLLE, M.D., Professor of Medicine (Pediatrics).

CHARLES C. AYER, Ph.D., Professor of Romance Languages.

GEORGE NORLIN, Ph.D., Professor of Greek.

FRANCIS RAMALEY, Ph.D., Professor of Biology.

CHARLES S. ELDER, M.D., Professor of Surgery (Gynecology).

NEWTON WIEST, M.D., Professor of Dermatology.

MELANCHTHON F. LIBBY, Ph.D., Professor of Philosophy.

JOHN BERNARD EKELEY, Ph.D., Sc.D., Professor of Chemistry.

JOHN CAMPBELL, A.M., LL.B., LL.D., Dean of the School of Law, Emeritus; Professor of Law of Private and Municipal Corporations.

RUSSELL D. GEORGE, A.M., Professor of Geology.

JOHN D. FLEMING, A.B., LL.B., LL.D., Dean of the School of Law; Charles Inglis Thomson Professor of Law; Associate Judge of the Practice Court.

* Professors, Assistant Professors, Lecturers, and Instructors are arranged in the order of appointment. Assistants rank as their departments. Within the general faculty are organized the Advisory Council, Senate, and faculties of the several schools and colleges.

- *JAMES R. ARNEILL, A.B., M.D., Professor of Medicine (Clinical Medicine).
- MILO S. KETCHUM, C.E., Dean of the College of Engineering; Professor of Civil Engineering.
- RICHARD W. CORWIN, M.D., LL.D., Professor of Surgery.
- CHARLES B. LYMAN, M.D., Professor of Surgery.
- JOHN M. FOSTER, M.D., Professor of Oto-laryngology.
- EDWARD JACKSON, A.M., M.D., Professor of Ophthalmology.
- †HERBERT S. EVANS, E.E., Professor of Electrical Engineering.
- JOHN A. HUNTER, M.E., Professor of Mechanical Engineering.
- THEODORE D. A. COCKERELL, Sc.D., Professor of Zoology.
- GEORGE M. CHADWICK, Professor of Music.
- JAMES F. WILLARD, Ph.D., Professor of History.
- OLIVER C. LESTER, Ph.D., Professor of Physics.
- FRANK E. THOMPSON, A.B., Director of the College of Education; Professor of Education.
- ROSS C. WHITMAN, A.B., M.D., Secretary of the School of Medicine, Boulder Division; Professor of Pathology.
- JUNIUS HENDERSON, A.B., Curator of the Museum; Professor of Natural History.
- JOHN S. McLUCAS, A.M., Professor of English.
- GRACE FLEMING VAN SWERINGEN, Ph.D., Professor of Germanic Languages.
- OSCAR M. GILBERT, M.D., Professor of Medicine (Clinical Medicine).
- ALVIN R. PEEBLES, M.D., Director of the Henry S. Denison Research Laboratory; Professor of Preventive and Experimental Medicine.
- CLOUGH T. BURNETT, M.D., Professor of Bacteriology.
- MILO G. DERHAM, Ph.D., Director of the Summer Session; Professor of Latin.
- LAWRENCE W. COLE, Ph.D., Director of the School of Social and Home Service; Professor of Psychology.
- GEORGE E. NEUHAUS, M.D., Professor of Neurology and Psychiatry.
- HENRY SEWALL, Ph.D., M.D., Professor of Medicine.
- EDMUND J. A. ROGERS, A.M., M.D., Professor of Surgery, Emeritus.
- THOMAS H. HAWKINS, A.M., M.D., LL.D., Professor of Surgery (Gynecology and Abdominal Surgery), Emeritus.
- ROBERT LEVY, M.D., Professor of Oto-laryngology.

* On leave of absence, 1916-1917.

† On leave of absence, 1915-1916.

- WILLIAM H. DAVIS, M.D., Professor of Dermatology and Genito-Urinary Diseases.
- WILLIAM J. ROTHWELL, M.D., Professor of Medicine, Emeritus.
- FRANCIS H. McNAUGHT, M.D., Professor of Obstetrics.
- LEONARD FREEMAN, B.S., A.M., M.D., Professor of Surgery.
- JOSIAH N. HALL, B.S., M.D., Professor of Medicine.
- CHARLES A. POWERS, A.M., M.D., Professor of Surgery (Clinical Surgery), Emeritus.
- CHARLES F. SHOLLENBERGER, M.D., Professor of Medicine (Pediatrics).
- HOWELL T. PERSHING, M.S., M.D., LL.D., Professor of Neurology and Psychiatry.
- HERBERT B. WHITNEY, A.B., M.D., Professor of Medicine (Pediatrics).
- HORACE G. HARVEY, A.B., M.D., Professor of Surgery.
- SHERMAN G. BONNEY, A.M., M.D., Professor of Medicine, Emeritus.
- MOSES KLEINER, M.D., Professor of Therapeutics.
- GEORGE B. PACKARD, M.D., Professor of Surgery (Orthopedics).
- T. MITCHELL BURNS, M.D., Professor of Obstetrics.
- WALTER A. JAYNE, M.D., Professor of Surgery (Gynecology and Abdominal Surgery).
- CHARLES B. VAN ZANT, M.D., Professor of Physiology.
- MELVILLE BLACK, M.D., Professor of Ophthalmology.
- WILLIAM C. MITCHELL, M.D., Professor of Bacteriology, Emeritus.
- DAVID H. COOVER, M.D., Professor of Ophthalmology.
- SAMUEL B. CHILDS, A.B., M.D., Professor of Roentgenology.
- JAMES H. PERSHING, A.B., Professor of Medical Jurisprudence.
- WILLIAM C. BANE, M.D., Professor of Oto-laryngology.
- *GEORGE H. STOVER, M.D., Professor of Roentgenology.
- †F. GILLETT BYLES, A.M., M.D., Professor of Hygiene.
- ‡JAMES C. TODD, Ph.B., M.D., Professor of Clinical Pathology.
- WILLIAM H. SHARPLEY, M.D., Professor of Medicine (Contagious Diseases).
- CARON GILLASPIE, M.D., Professor of Anatomy.
- HOMER C. WASHBURN, Ph.C., B.S. (Phar.), Dean of the School of Pharmacy; Professor of Pharmacy.
- ARTHUR J. MARKLEY, D.D.S., M.D., Professor of Dermatology.

* Died, March 25, 1915.

† Died, October 22, 1915.

‡ On leave of absence, first semester 1915-1916.

- LORAN D. OSBORN, Ph.D., Director of the Extension Division; Professor of Sociology.
- FREDERICK A. BUSHEE, Ph.D., Director of the College of Commerce; Professor of Economics and Sociology.
- RALPH D. CRAWFORD, Ph.D., Professor of Mineralogy and Petrology.
- HARRY A. CURTIS, B.S. (Ch.E.), Ph.D., Professor of Physical Chemistry.
- JOSEPH B. MORRILL, E.E., Acting Professor of Electrical Engineering.
- FRED G. FOLSOM, A.B., LL.B., Professor of Law; Judge of the Practice Court.
- WILLIAM R. ARTHUR, A.B., LL.B., Professor of Law.
- DAVID R. JENKINS, E.E., Assistant Professor of Electrical Engineering.
- WALTER W. REED, M.D., Assistant Professor of Obstetrics.
- S. ANTOINETTE BIGELOW, A.M., Dean of Women; Assistant Professor of Literature.
- FROST C. BUCHTEL, M.D., Assistant Professor of Surgery.
- JACOB CAMPBELL, M.D., Assistant Professor of Surgery.
- EDWARD F. DEAN, M.D., Assistant Professor of Surgery (Clinical Surgery).
- AUBREY H. WILLIAMS, M.D., Assistant Professor of Surgery (Clinical Surgery).
- C. HENRY SMITH, Ph.B., Librarian; Assistant Professor of Bibliography.
- WILLIAM A. COOK, Ph.D., High-School Visitor; Assistant Professor of Education.
- WHITNEY C. HUNTINGTON, C.E., Assistant Professor of Civil Engineering.
- HOWARD E. PHELPS, B.S. (C.E.), Assistant Professor of Civil Engineering.
- MAX M. ELLIS, Ph.D., Sc.D., Assistant Professor of Biology.
- CARL C. ECKHARDT, Ph.D., Assistant Professor of History.
- FRANK S. BAUER, M.E., Assistant Professor of Mechanical Engineering.
- FRANK L. CLAPP, Ph.D., Superintendent for Western Colorado (University Extension Division); Assistant Professor of Education.
- PHILIP G. WORCESTER, A.M., Assistant Professor of Geology.
- WILLIAM F. BAUR, Ph.B., Assistant Professor of Germanic Languages.
- FRANK G. ALLEN, B.S. (M.E.), Assistant Professor of Engineering Drawing.

- CHARLES S. SPERRY, A.B., C.E., Acting Assistant Professor of Engineering Mathematics.
- ARNOLD J. LIEN, Ph.D., Assistant Professor of Political Science.
- JAY W. WOODROW, Ph.D., Assistant Professor of Physics.
- CHARLES N. MEADER, A.B., M.D., Secretary of the School of Medicine, Denver Division; Assistant Professor of Medicine.
- ROBERT C. LEWIS, Ph.D., Assistant Professor of Physiology and Physiological Chemistry.
- JAMES N. ASHMORE, Director of Physical Education.
- HELEN MASTERS BUNTING, Director of Physical Education for Women.
- ROBERT S. MORRISON, Lecturer on Law of Mines and Mining.
- *LUCIUS M. CUTHBERT, A.M., LL.B., Lecturer on Roman Law.
- JOHN A. RINER, LL.B., Lecturer on International Law.
- CHARLES D. HAYT, Lecturer on Law of Taxation.
- WILLARD J. WHITE, A.M., M.D., Lecturer on Medical Jurisprudence.
- JAMES W. MCCREERY, Lecturer on Law of Irrigation and Water Rights.
- JOHN E. ROBINSON, Lecturer on Bankruptcy.
- EDWARD DELEHANTY, M.D., Lecturer on Neurology.
- OLIVER LYONS, M.D., Lecturer on Genito-Urinary Diseases.
- ALFRED R. SEEBASS, Ph.G., M.D., Lecturer on Life Insurance Examinations.
- HARRY S. SILVERSTEIN, A.B., Lecturer on Criminal Procedure.
- WILLIAM MACLEOD RAINE, A.B., Lecturer on Journalism.
- HENRY E. LUTZ, LL.B., Lecturer on Equity Pleading and Practice.
- ERWIN LOUIS REGENNITTER, LL.B., Lecturer on Colorado Code of Civil Procedure.
- EDWARD B. TROVILLION, M.D., Instructor in Anatomy.
- FRANK R. SPENCER, A.B., M.D., Instructor in Oto-laryngology.
- *WILLIAM R. BRACKETT, A.B., Instructor in Physics.
- CLAY E. GIFFIN, A.B., M.D., Instructor in Surgery.
- WILLIAM V. CASEY, Instructor in Education.
- JOHN W. AMESSE, M.D., Instructor in Medicine.
- CHARLES F. POE, A.M., B.S. (Phar.), Instructor in Chemistry.
- CLARENCE B. INGRAHAM, Ph.B., M.D., Instructor in Obstetrics.
- PAUL M. DEAN, A.M., Instructor in Chemistry.
- SAMUEL S. KINGSBURY, Ph.D., Instructor in Education.
- TRACY R. LOVE, Ph.B., M.D., Instructor in Medicine.

* Died, December 11, 1915.

* On leave of absence, 1915-1916.

- PHILIP HILLKOWITZ, B.S., M.D., Instructor in Pathology.
- *LORENA UNDERHILL, A.M., Instructor in Philosophy.
- RUTH M. SHELLEDY, A.M., Instructor in German.
- JOHN H. V. FINNEY, B.S. (E.E.), Instructor in Physics.
- JESSIE HUTSINPILLAR, A.M., Instructor in English.
- MARIE SORENSON, A.M., Instructor in English.
- LYNN R. LEONARD, E.E., Instructor in Electrical Engineering.
- IVAN C. CRAWFORD, C.E., Instructor in Civil Engineering.
- CLARIBEL KENDALL, A.M., Instructor in Mathematics.
- FRANCIS WOLLE, A.B., Instructor in English Literature.
- WILLIAM J. CHRISTIAN, B.S. (M.E.), Instructor in Mechanical Engineering.
- CHARLES M. MCCORMICK, E.E., Instructor in Electrical Engineering.
- THOMAS F. WALKER, M.D., Instructor in Histology and Embryology.
- HENRY M. SAYRE, Instructor in Accounting.
- SAMUEL FOSDICK JONES, M.D., Instructor in Surgery (Orthopedics).
- HENRY WILLIAMS WILCOX, M.D., Instructor in Surgery (Orthopedics).
- CYRUS L. PERSHING, B.S., M.D., Instructor in Neurology.
- CLAUDE EDWARD COOPER, A.B., M.D., Instructor in Oto-laryngology.
- EDWARD WELLES COLLINS, M.D., Instructor in Oto-laryngology.
- RUDOLPH W. ARNDT, M.D., Instructor in Medicine.
- ROBERT L. CHARLES, M.D., Instructor in Anaesthesia.
- WILLIAM H. CRISP, M.D., D.Oph., Instructor in Ophthalmology.
- ESTELLE M. KYLE, A.M., Instructor in Education.
- FLORENCE GALLIGAN JOSLYN, A.M., Instructor in Education.
- JAMES L. MERRILL, B.S. (C.E.), Instructor in Engineering Drawing.
- WALTER F. MALLORY, B.S. (M.E.), Instructor in Mechanical Engineering.
- CLARENCE L. ECKEL, B.S. (C.E.), Instructor in Civil Engineering.
- EDWARD R. MUGRAGE, A.M., M.D., Instructor in Pathology.
- DOROTHY M. BURTON, A.B., Instructor in English Literature.
- ERSKINE R. MYER, A.B., Instructor in English.
- EDNA REYNOLDS, A.M., Instructor in Psychology.
- CRAIG M. BOUTON, A.B., Instructor in Chemistry.
- EDUARD F. GRUNDHOEFFER, B.S. (M.E.), Instructor in Mechanical Engineering.
- †JAMES J. DOLAND, B.S. (C.E.), Instructor in Engineering Mathematics.

* On leave of absence, 1915-1916.

† Resigned, February 1, 1916.

- WILLIAM WILEY JONES, A.B., M.D., Instructor in Medicine.
MAUD E. CRAIG, A.M., Instructor in Latin and in Greek.
ARTHUR T. EVANS, A.M., Instructor in Biology.
ETIENNE B. RENAUD, A.M., Instructor in Romance Languages.
EDWIN B. PLACE, A.B., Instructor in Romance Languages.
LEONARD C. JONES, A.B., Instructor in Physics.
IRENE P. MCKEEHAN, A.B., Instructor in English.
ARTHUR E. GILMAN, A.B., Instructor in the University Extension
Division.
HUGH C. PRYOR, A.M., Instructor in Education.
ELMORE PETERSEN, A.B., Instructor in the University Extension
Division.
NATHAN ALTSHILLER, Sc.D., Instructor in Mathematics.
LAWRENCE HURST, A.M., Instructor in History.
W. SCOTT BOYCE, A.M., Instructor in Economics.
JOHN MCCHESENEY, A.B., Instructor in Philosophy.
HELEN G. MARTIN, A.M., Instructor in the University Extension
Division.
JOHN J. FLACH, B.S. (E.E.), Instructor in Engineering Mathematics.
LUCIEN H. SHATTUCK, B.S. (C.E.), Instructor in Civil Engineering.
GEORGE P. LINGENFELTER, M.D., Instructor in Dermatology.
HELEN FRANCES CRAIG, B.S., M.D., Instructor in Pathology.
CLAIR V. MANN, B.S. (C.E.), Instructor in Engineering Mathematics.
FRANK R. COFFMAN, M.D., Instructor in Contagious Diseases.
JAMES H. COWLES, A.B., Instructor in Life Insurance and Extension
Instructor.
MAY SNYDER, A.B., Assistant in Romance Languages.
HELEN A. LEONARD, A.B., Assistant in Biology.
ROBERT M. BURNS, A.B., Assistant in Chemistry.
CLIFFORD BANTA, A.B., Assistant in Chemistry.
FRANK F. BEVERLY, B.S. (Ch.E.), Assistant in Chemistry and in
Engineering Mathematics.
NORMAN E. A. HINDS, A.B., Assistant in Geology.
JAMES TERRY DUCE, A.B., Assistant in Geology.
WINIFRED BRAMMER, A.B., Assistant in History.
HELEN MOORE, Assistant in History.
ADELBERT J. GREENE, Assistant in Physics.
GLADYS C. CURTIS, A.B., Assistant in Education.
ALICE DOWNING, A.M., Assistant in English.
FLORENCE M. FARRINGTON, A.M., Assistant in German.

GERTRUDE GATES, A.B., Assistant in German.
EVA FREEMAN, A.B., Assistant in Psychology.
ARCHIBALD STOCKDER, A.B., Assistant in Economics.
LESLIE M. LECRON, Assistant in Gymnasium.
EDWIN PATTON, Assistant in Gymnasium.
BEATRICE BOLAN, Assistant in Physical Education for Women.
MATT W. MOYLE, B.S. (M.E.), Assistant in Mechanical Engineering.
WILBUR A. HITCHCOCK, B.S. (C.E.), Assistant in Engineering Mathematics.
LEO B. COHENOUR, Assistant in Histology and Pathology.
MAURICE KATZMAN, Assistant in Pathology.
DORA VON HOLDT, Assistant in Bacteriology.
LEWIS I. MILLER, A.B., Assistant in Anatomy.
LEO TEPLITZKY, Assistant in Pathology.
JOHN S. BOUSLOG, A.B., Assistant in Pathology.
RUSSELL N. LOOMIS, Ph.C., Assistant in Pharmacy.
CHARLES H. WELLES, Ph.C., Assistant in Pharmacy.

FRED E. HAGEN, A.B., Secretary and Registrar.
F. GRACE HALL, A.B., Assistant Registrar.
RUTH N. CRARY, A.B., Assistant Recorder.
FRANK H. WOLCOTT, B.S., Secretary of the Board of Regents and Bursar.
C. HENRY SMITH, Ph.B., Librarian.
FAITH E. FOSTER, A.B., Assistant Librarian.
EMMA A. JACKSON, A.B., Assistant Librarian.
ELIZABETH F. SELLECK, A.B., Assistant Librarian.
BRYANT SMITH, A.B., Law Librarian.
H. SPENCER GELTZ, Secretary of the Committee on Recommendation of Teachers.
JOSEPH KLEMMER, Superintendent of Buildings and Grounds.

GENERAL STATEMENT

HISTORY

The University of Colorado was incorporated by an act of the First Territorial Legislature of Colorado, in 1861, and the location fixed at Boulder. The act states that the University was "designated to promote and encourage the diffusion of knowledge, in all the branches of learning, including the scientific, literary, theological, legal and medical departments of instruction". A board of trustees with needful powers was constituted, but never met to transact business. A second act of the year 1870 revived the project of a university at Boulder and reconstituted the board of trustees. In 1872, three public-spirited citizens of Boulder gave the University fifty-two acres of land adjoining the city. In 1874, the Territorial Legislature appropriated \$15,000 to the University, conditioned on the raising by the trustees of an equal amount "by subscription, donation, or otherwise". The trustees having met this condition, the first installment of the appropriation was paid on June 7, 1875. Plans for the erection of a building were then made. In 1875, Congress "set apart and reserved for the use and support of a state university" seventy-two sections of public lands. The Constitution of Colorado, adopted in 1876, made the "University at Boulder" an institution of the State, thus entitling it to the lands appropriated by Congress, and provided for its management and control, as follows: "The Board of Regents shall have the general supervision of the University, and the exclusive control and direction of all funds of, and appropriations to, the University". The University is supported by the proceeds of a tax of approximately one-fifth of a mill and by special appropriations.

The Institution was opened September 5, 1877, with two departments, Preparatory and Normal. After a few years the Normal department was dropped, and in 1907 the Preparatory department was discontinued. The University comprises the following schools and colleges: College of Liberal Arts, 1878; School of Medicine, 1883; Graduate School, 1892; School of Law, 1892; College of Engineering, 1893; Summer Session, 1904; College of Commerce,

1906; College of Education, 1908; College of Pharmacy, 1911; University Extension Division, 1912; and School of Social and Home Service, 1912.

SITUATION

The University is situated at Boulder, a city of 12,000 inhabitants, about thirty miles north from Denver. The Denver and Inter-urban Railway, with hourly electric service, and the Colorado and Southern and Union Pacific railways connect Boulder and Denver.

BUILDINGS AND GROUNDS

The University campus comprises sixty acres; Stratton Field, northeast of the main campus and about one-quarter mile distant, twelve acres. The University buildings are Heating, Lighting and Power Plant, Macky Auditorium, Library, Woodbury Hall (Men's Dormitory), Women's Building, Men's Building, Gymnasium, President's House, Liberal Arts Building, Hale Science Building, Chemistry Building, New Science and Museum Building, Engineering Building, Shops Building, Medical Building, Henry S Denison Memorial Building, Hospital, Nurses' Home, Isolation Hospital, Simon Guggenheim Law Building, Pharmacy Building. Of these, eighteen have been erected by the State, and the Macky Auditorium, the Henry S. Denison Memorial Building, and the Simon Guggenheim Law Building have been erected by private benefaction. For the use of the third and fourth years of the School of Medicine, a building located at Thirteenth and Welton Streets, Denver, is rented.

LIBRARY

The Library numbers 89,718 bound volumes, 20,000 pamphlets, and 1,700 maps. Direct access to the shelves is the rule. The main library is open to all during term time from 7:45 a. m. to 10:00 p. m., week days, except Friday and Saturday, when the closing hour is 9:00 p. m. Vacation hours are 9:00 a. m. to 5:00 p. m., week days.

The main library occupies the central portion of the Library Building. 65,000 books are shelved within its walls. Three hundred people may be seated at the different reading tables at one time. A card catalogue numbering upwards of 192,000 cards, giving authors and subjects, directs seekers to books or portions thereof.

Departmental libraries are maintained for Biology, Chemistry, Denison Research Laboratory, Education, Engineering, Geology, German, Law, Mathematics, Museum, Music, Pharmacy, Physics, and

School of Medicine (Denver). Through this system over 24,000 volumes upon special subjects are deposited in the building where the particular subject is taught.

Through library extension, books not in actual demand for resident use may be borrowed by citizens of Colorado.

ENTRANCE

Persons intending to enter the University must present their credentials to the Registrar before registration. Certificates from accredited high schools, signed by the proper authorities and indicating the character and extent of the work completed, are accepted. Certificates of the New York State Board of Regents and similar bodies and of the College Entrance Examination Board and credits of a non-accredited high school may be accepted provisionally, full standing being conditional on the subsequent work of the student concerned.

Students seeking advanced standing must present in addition to the above an official record of their college or university work, a marked catalogue, and a letter of honorable dismissal from the institution last attended. Real equivalents will be accepted. Advanced standing will not be definitely determined until the student has completed at least one semester's work in this University.

No statement of the entrance status of an applicant can be given by the Registrar until he has before him complete credentials.

Students are earnestly advised to be present at the opening of a semester. In the School of Medicine no student will be allowed to enter later than the second Monday after the opening of the University.

An information bureau for the convenience of new students may be found in the Registrar's office in the Macky Auditorium. The rooms of the Christian Associations and of the Women's League are open for the reception of students during the opening days of the University.

The Registrar's office is open for registration, beginning Friday morning preceding the opening day of the University. All students are requested to register as soon as possible. Students continuing work in the department in which they have been previously enrolled, register first with the Dean and then with the Registrar. New students, and old students transferring from one department to another, register first in the Registrar's office.

REQUIREMENTS FOR ADMISSION

THE COLLEGE OF LIBERAL ARTS, COLLEGE OF COMMERCE, COLLEGE OF EDUCATION, AND SCHOOL OF SOCIAL AND HOME SERVICE

Candidates for admission are expected to be graduates of a standard four-year high or preparatory school and *must present fifteen acceptable units*. Applications from candidates who have completed an equivalent amount of work under other conditions will be considered on the merits of each case; in general, such candidates will be expected to pass entrance examinations.

Certificates of moral character may be required from all applicants.

Entrance conditions will not be allowed beyond one unit, and then only upon recommendation of the principal of the school from which the candidate graduated. This applies to all students, including graduates of commercial and other courses wherein some of the subjects are not accepted for University matriculation.

Candidates with fifteen acceptable units, coming from a standard four-year high or preparatory school, who are not graduates, may be admitted on the recommendation of the principal.

A unit course of study is defined as a course covering a school year of not less than thirty-six weeks, with five periods of at least forty-five minutes each per week, two periods of Manual Training or Laboratory work being equivalent to one period of classroom work. This is equivalent to one hundred and eighty actual "periods" per unit. The fifteen units are equivalent to thirty "points."

The fifteen units should be distributed as follows:

Mathematics	2
Languages other than English.....	4
English	3
History	2
Science	2
Electives	2
	—
	15

Electives may be chosen from the following: Mathematics, 2; Greek, 2; Latin, 2; French, 2; German, 2; Spanish, 2; History, 2; English, 1; Science, 2; Psychology, $\frac{1}{2}$. From the following group, subject to special accrediting by the University, not more than three

units: Drawing, 1; Manual Arts, 2; Domestic Science, 1; Agriculture (Introductory Science), 1; Commercial Geography, $\frac{1}{2}$; Elementary Economics, $\frac{1}{2}$.

Students who do not present the units specified in the above table of requirements for admission but who do present fifteen acceptable units, will be regularly admitted. Such students will, however, be required to elect in College courses that will fulfill the requirements specified, e. g., if a student enters with but two units of Language other than English, then he must include in his College course the equivalent of two units in foreign language. This provision materially widens the scope of electives that will be accepted for College entrance.

1. Half units will not be accepted in Physics and Chemistry.
2. Students who present three units of Greek are required to present only one unit of Science, but they must have a total of fifteen units.
3. For the foreign language requirement not more than two languages can be presented. Four units of Latin are preferred, at least two units urgently advised.

Special Students.

Persons of mature years, even if they are unable to meet the entrance requirements, may be admitted to certain courses on the approval of the departments concerned and the Committee on Courses. In no case will applications be considered from persons who are not twenty-one years of age. Students should not actually come to the University in the hope of entering as special students unless they have been assured *in writing* by the Registrar that there is a reasonable prospect of their being admitted.

THE COLLEGE OF ENGINEERING

Candidates for admission are expected to be graduates of a standard four-year high or preparatory school, or to have completed a corresponding amount of work under other conditions.

Students may be admitted on the passing of satisfactory examinations or on the presentation of certificates from an accredited high school. Applications from graduates of a non-accredited school will be considered as the merits of each case may warrant; but full standing in such instances shall be conditional upon the subsequent work of the student concerned.

Certificates of moral character may be required from all applicants for admission.

Fifteen units are required for admission. Entrance conditions will not be allowed beyond the equivalent of two units. For definition of "unit," see page 28.

The fifteen units should be distributed as follows:

Mathematics (Algebra, Plane and Solid Geometry) . . .	3
Languages other than English	2
English	3
History	2
Physics	1
Electives	4
	—
	15

Electives may be chosen from the following: Mathematics, 2; Greek, 3; Latin, 3; French, 3; German, 3; Spanish, 3; History, 2; English, 1; Science, 3; Civics, 1; Economics, $\frac{1}{2}$; Psychology, $\frac{1}{2}$. From the following group, subject to special accrediting by the University, not more than three units: Drawing, 2; Manual Training, 2; Agriculture (Introductory Science), 1; Commercial Geography, $\frac{1}{2}$; Stenography, 1; Bookkeeping, 1; Commercial Law, $\frac{1}{2}$.

Special Students.

Mature candidates, more than twenty-one years of age, who have had satisfactory preparation in algebra, geometry, physics, and English may be admitted as special students. Special students pursue the regular course and are required to remove their entrance deficiencies within two years. No one may enroll in the College of Engineering as a special student for more than two years except on the approval of the Dean and a vote of the Faculty.

THE GRADUATE SCHOOL

Graduates of any college or scientific school of equal rank with the University of Colorado are admitted upon presentation of certificates of graduation. Students from other institutions should present their credits to the Registrar for rating. See also, page 175.

THE SCHOOL OF MEDICINE

Candidates for admission must fulfill the entrance requirements of the College of Liberal Arts, as given in detail on page 28, and present in addition two years of college work, estimated at sixty semester hours, not including credit in physical education. The following subjects are prescribed: At least one year of Latin, one year each of college chemistry, physics, biology, and French or German. Entrance conditions will not be allowed beyond the equivalent of six semester hours.

Not more than thirty students will be admitted to the first-year class. Preference will be given to those entering without conditions.

All candidates for admission should present a certificate of good character from two physicians in the state in which they last resided.

Students are earnestly advised to be present at the opening of the session. For the session of 1916-1917 no student will be allowed to enter later than Monday, September 25, 1916.

Special Students.

Mature students, not candidates for the degree of M.D., who can give satisfactory evidence of their qualifications to pursue certain advanced courses, may be admitted as special students. No student should come to the University with the expectation of entering as a special student unless he has been previously assured *in writing* by the Registrar that there is a reasonable prospect of his being admitted.

THE SCHOOL OF LAW

Candidates for admission must fulfill the entrance requirements of the College of Liberal Arts, as given in detail on page 28, and present in addition, two years of college work estimated at sixty semester hours, not including credit in physical education. At least two high-school units of Latin are prescribed.

All candidates must present certificates of good moral character.

Special Students.

Persons twenty-three years of age, who cannot satisfy the admission requirements but are qualified to pursue special work, may be admitted to certain courses on approval of the proper committee of the faculty. Students should not actually come to the University in the hope of entering as special students unless they have been assured *in writing* by the Registrar that there is a reasonable prospect of their being admitted.

THE COLLEGE OF PHARMACY

Candidates for admission are expected to be graduates of a standard four-year high or preparatory school and *must present fifteen acceptable units*. Applications from candidates who have completed an equivalent amount of work under other conditions will be considered on the merits of each case; in general, such candidates will be expected to pass entrance examinations.

Certificates of moral character may be required from all applicants.

Entrance conditions will not be allowed beyond one unit and then only upon recommendation of the principal of the school from which the candidate graduated. This applies to all students including graduates of commercial and other courses wherein some of the subjects are not accepted for University matriculation.

Candidates with fifteen acceptable units, coming from a standard four-year high or preparatory school, who are not graduates, may be admitted with the consent of the principal.

For definition of "unit," see page 28.

The fifteen units should be distributed as follows:

Mathematics	2
Latin	1
English	3
History	2
Science (1 unit of Physics).....	1
Electives	6

15

Electives may be chosen from the following: Mathematics, 2; Greek, 2; Latin, 2; French, 2; German, 2; Spanish, 2; History, 2; English, 1; Science, 2; Psychology, $\frac{1}{2}$. From the following group, subject to special accrediting by the University, not more than three units: Drawing, 1; Manual Arts, 2; Domestic Science, 1; Agriculture (Introductory Science), 1; Commercial Geography, $\frac{1}{2}$; Elementary Economics, $\frac{1}{2}$; Commercial Law, $\frac{1}{2}$; Bookkeeping, $\frac{1}{2}$.

Half units will not be accepted in Physics and Chemistry.

Special Students.

Persons twenty-one years of age, who cannot satisfy the admission requirements but are qualified to pursue special work, may be admitted to certain courses on approval of the proper committee of

the faculty. Students should not actually come to the University in the hope of entering as special students unless they have been assured *in writing* by the Registrar that there is a reasonable prospect of their being admitted.

ACCREDITED SCHOOLS*

Alamosa	Florence	Monte Vista
Arvada	Fort Collins	Montrose (Montrose County)
Aspen	Fort Morgan	
Berthoud	Fowler	Ouray (Ouray County)
Boulder (State Preparatory)	Fruita (Union)	
Breckenridge	Georgetown	Palisades:
Brighton	Glenwood Springs	Palisade
Brush (Union)	(Garfield County)	Mount Lincoln
Canon City:	Golden	Paonia
Canon City	Grand Junction	Pueblo:
South Canon	Greeley	Centennial (District No. 1)
Central City (Union)	Gunnison (Gunnison County)	Central (District No. 20)
Castle Rock (Douglas County)	Holly (Union)	
Cheyenne Wells (Cheyenne County)	Holyoke (Phillips County)	Rifle (Union)
Colorado City	Idaho Springs	Rocky Ford
Colorado Springs	Julesburg (Sedgwick County)	Saguache (Saguache County)
Cripple Creek	Lafayette	Salida
Debeque	La Junta	Silverton
Delta	Lamar (Union)	Sterling (Logan County)
Denver:	Las Animas (Bent County)	Telluride
East Side	Leadville	Trinidad
Manual Training	Littleton	Victor
North Side	Longmont	Walsenburg (Huerfano County)
South Side	Louisville	Wheatridge
West Side	Loveland	Windsor
The Wolcott School	Manitou	Wray (Yuma County)
Durango	Meeker (Rio Blanco County)	
Eaton		

*Alphabetically by postoffices.

TUITION AND FEES*

INCIDENTAL FEE.

Annual fee for all students in all the colleges and schools (except the Denver Division of the School of Medicine, \$3.00).....\$ 6.00

COLLEGES OF LIBERAL ARTS, COMMERCE, AND EDUCATION, AND SCHOOL OF SOCIAL AND HOME SERVICE.

Matriculation (paid once).....\$ 5.00

Tuition, resident, per year..... 15.00

Tuition, non-resident, per year..... 25.00

Laboratory fees, collected *each semester* from students who take the particular courses. [These fees include breakage deposits, etc., as well as charges for material.]

Physics, all laboratory courses, 25 per cent. returnable at end of course..... 3.00

Chemistry (Lecture hours are not counted):

General Inorganic, per credit hour, 25 per cent. returnable 3.00

Qualitative Analysis, per credit hour, 25 per cent. returnable 3.00

Organic Preparations, per credit hour, 25 per cent. returnable 3.00

All other courses, per credit hour, 25 per cent. returnable 2.00

Biology:

Botany, any course, 25 per cent. returnable.... 2.00

Zoology, any course, 25 per cent. returnable.... 3.00

Education:

Pedagogical library fee for each pedagogical course requiring duplicate books..... 1.00

Teacher's registration fee..... 1.00

Psychology:

Experimental Psychology..... 1.00

* Special breakage charges may be collected whenever necessary in any laboratory department of the University.

Geology:

General Geology, per year, 60 per cent. returnable	5.00
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Mineralogy:

Determinative Mineralogy, 25 per cent. returnable	4.00
Advanced Mineralogy, 25 per cent. returnable..	2.00
Fire Assaying, 25 per cent. returnable.....	6.00

Geography:

Physiography, for field trips and maps, unused part returnable.....	3.50
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COLLEGE OF ENGINEERING.

Matriculation (paid once)	5.00
Tuition, resident, per year.....	15.00
Tuition, non-resident, per year.....	25.00
For laboratory fees in Engineering courses, see page 132.	

GRADUATE SCHOOL.

Matriculation (not required of graduates of this University or of instructors, paid once)	10.00
Diploma fee.....	10.00
Tuition, per year, for courses in Ophthalmology.....	30.00

DEPARTMENT OF PREVENTIVE AND EXPERIMENTAL MEDICINE.

Matriculation	5.00
Tuition	15.00
Laboratory fees, per semester hour (not including expenses of field trips) .....	.50
Diploma fee.....	10.00

SCHOOL OF MEDICINE.

Tuition, resident, per year.....	75.00
Tuition, non-resident, per year.....	100.00*
Laboratory deposit, per semester, paid by all first and second year students to cover breakage and excessive and unreasonable use of material.....	10.00

* Students registered in the School of Medicine before 1914-1915, pay \$75.00.

SCHOOL OF LAW.

Tuition, per year.....	50.00
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COLLEGE OF PHARMACY.

Matriculation (paid once).....	5.00
Tuition, resident, per year.....	15.00
Tuition, non-resident, per year.....	25.00
Tuition, for the third year in Denver.....	10.00

For laboratory fees in Pharmacy courses,
see page 235.

SUMMER SESSION.

For Summer Session fees, see page 245.

EXTENSION FEES.

For Extension fees, see pages 260, 262.

NOTE—Matriculation fees will not be refunded. Students withdrawing from the University will be charged 10 per cent. of the annual tuition and incidental fees for each week of attendance in the Colleges of Liberal Arts, Engineering, and Pharmacy, and 5 per cent. in the Schools of Law and Medicine. No refunds will be made in the Graduate School after the second week of attendance. Students entering for one semester will be charged only 60 per cent. of the tuition fee and 50 per cent. of the incidental fee.

LIVING EXPENSES

The average price of board, room, light, and fuel may be placed at from \$5.50 to \$8.00 a week. Day board in boarding houses and city restaurants varies from \$4.00 to \$6.00 a week. The rent for furnished rooms varies from \$6.00 to \$15.00 a month. As a rule a room costing more than \$8.00 a month may be occupied by two students. Facilities for light housekeeping enable students to lessen expenses materially. Boarding clubs are organized and are open to new students.

The following table shows the estimated annual expenses of students of the University, excluding clothing and traveling expenses; the expense varies with the course pursued, and also depends, naturally, upon the tastes and habits of the individual:

Board	\$140.00 to \$216.00
Room	40.00 to 108.00
Books, instruments, and stationery....	10.00 to 60.00
Laundry	9.00 to 36.00
Tuition and fees.....	21.00 to 116.00
Incidentals	18.00 to 50.00
	<hr/>
	\$238.00 \$586.00

The items for books and fees are high in the second table because they are estimated on the basis of a liberal allowance for students in the Schools of Medicine and Law.

The University has no dormitories for women and no boarding facilities. (See page 39.) Information concerning the Men's Dormitory may be found on page 39.

Information concerning the location of rooming and boarding places may be had at the office of the Registrar or from the secretaries of the University Christian Associations. Women students should consult also the Dean of Women. Inquiries concerning expenses should be directed to the Registrar.

EMPLOYMENT

While the University does not undertake to find employment for students, yet every assistance possible is given by University officers. The Registrar cooperates with the secretaries of the two Christian Associations, each of which conducts an employment bureau.

No general information can be given concerning employment because the personal capacity, efficiency, and energy of the student concerned and the time which he can devote to outside work are controlling factors.

Prospective students should not come to the University unless they have, at the time of entering, enough money to pay a reasonable part of the first semester's expenses. A few students are able to earn enough money to pay all of their expenses, but the attempt to do this frequently involves a sacrifice of health or scholarship.

Inquiries concerning employment should be directed to the Registrar.

SCHOLARSHIPS

HIGH-SCHOOL HONOR SCHOLARSHIPS

Scholarships, consisting of a remission of the annual tuition (\$15.00) for four years in the Colleges of Liberal Arts, Engineering, and Pharmacy, are granted to graduates of four-year high schools of Colorado, upon recommendation of the principal, according to the following plan:

To graduating classes of ten or less, one scholarship to either the first or second in rank; to classes of from ten to twenty-five, one scholarship to one of the first three in rank; to classes of twenty-five to fifty, two scholarships to any of the first six in rank; to classes of fifty to one hundred, three scholarships to any of the first nine in rank; to classes of over one hundred, four scholarships to any of the first twelve in rank.

A scholarship is forfeited whenever the student's yearly average falls below 80 per cent.

THE EDWARD G. STOIBER SCHOLARSHIP

The Edward G. Stoiber Scholarship Fund consists of the principal sum of \$2,000 held in trust, the income of which is given each year to some student in the School of Medicine, designated by the donor or by the officers of the School. This scholarship was established in The Denver and Gross College of Medicine by Mrs. Edward G. Stoiber in memory of the late Edward G. Stoiber. Under the terms of the merger agreement between The Denver and Gross College and the University of Colorado this fund has been transferred to the Regents, to be held in perpetuity for the purposes specified.

PRIZES

THE BENNETT PRIZE

The Bennett prize is awarded annually at Commencement for the best essay on *The Principles of Free Government*. Any student in the University may compete. The prize awarded is the income of the sum of \$400 presented to the Regents of the University by Hon. William J. Bryan, Trustee for Philo Sherman Bennett.

LOAN FUNDS

WOMEN'S LEAGUE LOAN FUND

This fund consists of the principal sum of about \$1,000. Loans are made to women students by the officers of the Women's League.

THE WILLIAM PORTER HERRICK MEMORIAL FUND

This fund, the gift of Mrs. Ursula D. Herrick in memory of her husband, the late William Porter Herrick, consists of the principal sum of \$5,000. The proceeds of this fund are awarded by the Regents of the University "in aid of such worthy and promising undergraduate students of the University, of either sex, as the President of said University may from time to time designate; provided, however, that no student who uses tobacco in any form, or who uses intoxicating liquors of any kind as a beverage shall participate in the benefits of this fund".

MEN'S DORMITORY

The rooms in the Men's Dormitory are in suites of three rooms each—a sitting room, and two bed rooms. Each suite is intended to accommodate four men. Room rent (\$12.00 a month for a suite) must be paid in advance for each semester. The rooms are unfurnished; the University provides light, heat, and care of rooms.

Occupants of rooms are held responsible for any damage; a deposit fee of \$5.00 is collected from each student. This is returned when room is vacated, less such portion thereof as may have been set aside for repairing damages.

UNIVERSITY HOSPITAL.

The University Hospital provides hospital advantages for students of the University. A flat rate of \$8.00 a week is made for students in the general wards, and \$15.00 a week in the isolation hospital. For further information concerning the University Hospital, see page 220.

SUPERVISION OF WOMEN STUDENTS

DEAN OF WOMEN

The Dean of Women directs the interests of women students. She regulates social activities for both men and women, and is a member of the faculty committee which has direction over all student organizations and extra-curricular activities. The houses in which women room and board are under her supervision.

HOMES FOR WOMEN

Since there is no residence hall for women under the management of the University, suitable homes are provided in private

families and in rooming houses. No woman student is allowed to live in any rooming house which is not on the University list accredited by the Dean of Women.

HEALTH OF WOMEN

The health of the women students is supervised by the Dean of Women, to whom all cases of illness are reported. Upon entrance to the University, all freshmen women are required to take a medical examination given by a University physician and a physical examination given by the Department of Physical Education for Women. At this time students are advised as to the hygiene of their daily lives. A series of lectures on personal hygiene, given by the Director of the Department of Physical Education for Women, is required of all freshmen women, and is open to all other women students. On alternate years a series of lectures on social hygiene is given by a woman physician. Lectures on first aid to the injured and on common ailments are given by members of the faculty of the School of Medicine. In the University Hospital provision is made for the care of students of the University. See page 39.

WOMEN'S BUILDING

The Women's Building furnishes headquarters for the women of the University. Here are the offices of the Dean of Women, the Women's League, and the Young Women's Christian Association. There is a hall for meetings and entertainments.

WOMEN'S LEAGUE

The Women's League is an association composed of the undergraduate women of the University, of alumnae, and of the wives of members of the faculties. Its purpose is two-fold: First, to promote the intellectual and social welfare of the women of the University; and secondly, to establish a loan fund for the benefit of women students.

STUDENT ASSEMBLY

The period from 11:00 to 12:00 on Tuesday is set apart for assembly of students. During this period no class or lecture work is conducted. A brief address is given by a member of the faculty or by some speaker invited for the occasion. Attendance is required.

UNIVERSITY PUBLICATIONS

1. Catalogue, published in March, containing general information about the University and its separate departments.
 2. Summer Session Announcement, published in February.
 3. The special announcements of the departments of Medicine, Law, Engineering, and Pharmacy, published in June.
 4. The biennial report of the Regents of the University, recording the progress of the Institution during the previous biennial period, and showing the University budget of receipts and expenditures for the same period, published biennially in October.
 5. The University of Colorado Studies, published at irregular intervals, and containing original contributions by members of the University faculties.
 6. University Extension Bulletins on various subjects of investigation.
 7. The Booklet of Views, containing half-tone cuts of the buildings and grounds.
 8. The University News-Letter, containing current news of the University.
 9. General Catalogue of the Officers, Members of the Faculties, and Graduates of the University from the opening of the Institution, published triennially.
- These publications may be obtained by application to the Registrar of the University.

STUDENT AND ALUMNI PUBLICATIONS

- The Silver and Gold*, a semi-weekly paper, named after the University colors, is published by the students.
- The Coloradoan*, an annual, is published by each junior class.
- The Colorado Engineers' Magazine* is published quarterly by the students of the College of Engineering.
- The University of Colorado Handbook* is published annually by the Christian Associations.
- The Civic Quarterly* is published by the Civic Club.
- The Colorado Alumnus*, issued monthly, is the official publication of the Associated Alumni.
- The Journal of Engineering*, a quarterly, is published by the alumni and the students of the College of Engineering.

UNIVERSITY SCIENTIFIC SOCIETY

The University Scientific Society affords a common meeting ground for all those interested in scientific subjects. Regular meetings, open to the public, are held every Monday evening at eight o'clock. The papers read before these meetings are intended to set before the members some of the results of modern investigation in literature, art, history, and science.

ASSOCIATED STUDENTS

The student body is organized into an association known as "The Associated Students of the University of Colorado". Through this Association the students act collectively in all their University relations. There are three executive boards—the Commission, the Athletic Board, and the Debating Board. The membership of these boards consists of faculty representatives appointed by the President of the University and student members elected by the students. The Commission controls general interests and the other two boards the activities indicated by the names; together they appoint the general manager who has direct control of, and responsibility for, every student enterprise of general interest. By the payment of a \$6.00 fee any student, alumnus, or member of the faculties is entitled to admission to all local contests, games or other events under the Association's auspices. Provision is made in the Constitution for a careful supervision of student funds, for the recall of any officers, and for the initiative and referendum.

ORATORICAL AND DEBATING INTERESTS

All public debates and oratorical contests are held under the management of the Debating Board of the Associated Students. This board consists of three faculty and three student members.

Annual debates are held with five other state universities. The teams for these debates are chosen by contest. The teams and alternates constitute a squad of twenty men, who are under the direct supervision of the instructor in debating.

The Debating Board conducts each year an oratorical contest, in which cash prizes are offered.

ATHLETICS

It is the purpose of the University to stimulate interest in the greatest possible variety of wholesome athletics for both men and

women. The policy of developing highly specialized intercollegiate teams is subordinated to that of providing suitable exercise for all students. The climate is such as to make out-of-door recreation and games agreeable during most of the year. Walking and mountain climbing clubs have been organized and encouraged. A number of tennis courts are maintained, on which the game can be enjoyed during most of the year. Tournaments are held each spring and fall.

The following branches of organized athletics are offered for men: football, baseball, basketball, soccer football, cross-country running, track and field sports, with intercollegiate, interclass, and interfraternity competition. The following branches are offered for women: basketball, baseball, captain-ball, volley-ball, tennis, and archery, with interclass competition. All students who participate in athletics are required to take a medical and physical examination.

Athletics—especially intercollegiate athletics—are placed on a stable financial foundation under the organization of the Associated Students of the University. General supervision and direction of athletics is vested in the Athletic Board, composed of three members of the Faculty, appointed by the President of the University, and three student members, who are officials of the Associated Students. This Board is responsible in all things to the University Senate. Women's athletics are controlled by the Director of Physical Education for Women and the Women's Athletic Association.

The University has a chapter of the national athletic society, Sigma Delta Psi, membership in which is open to men who successfully complete fourteen athletic requirements.

MUSICAL ORGANIZATIONS

The University Glee and Mandolin Clubs are open to men of the University. Members are selected by competitive examination. An annual tour of the State, under the auspices of the A. S. U. C., is made each year.

The University Band furnishes music for the various general University functions.

The Women's Instrumental Club is open to women of the University.

All musical organizations are under the direction or general supervision of the Professor of Music.

RELIGIOUS ORGANIZATIONS

Y. M. C. A. AND Y. W. C. A.

The Young Men's Christian Association and the Young Women's Christian Association have organizations in the University, which are open to members of the faculties and to students of all departments.

Religious services and meetings for the presentation of the moral and religious problems of the day are held by each Association. Classes for the study of the Bible and world-wide missions are conducted by each under competent leadership. Vesper services are held in the Chapel. In providing frequent social gatherings the Associations render important service.

Resident secretaries are employed by the Associations, and their services are at the disposal of prospective students and their friends. A copy of the Students' Handbook, which is issued by the Associations and is descriptive of life at the University, is sent upon request.

The Y. W. C. A. conducts a board and room register, a book exchange, and a self-help bureau for the women at the opening of each school year. The Y. W. C. A. offices are in the Women's Building and are open at all times to the women of the University.

The Y. M. C. A. has offices in the Men's Dormitory. Permanent employment bureau, information bureau, and headquarters for men are maintained here. The Student and Faculty Directory is published by the Y. M. C. A.

NEWMAN SOCIETY

The Newman Society is the local branch of the Catholic Students' Association of America. Membership is open to all Roman Catholic students. Its purposes are both religious and social.

HONOR SOCIETIES

Four honor societies, to which students of high scholastic standing are eligible, have chapters at the University of Colorado. Phi Beta Kappa elects to membership senior students in the College of Liberal Arts. Sigma Xi offers membership to graduate and undergraduate students who have shown special ability in scientific investigations. Tau Beta Pi is a technical society, selecting members from students in the College of Engineering. Kappa Delta Pi elects to membership students in the College of Education.

STUDENT LITERARY SOCIETIES AND CLUBS

Literary societies and debating clubs are organized and conducted each year by the students.

The Richard's Literary Society comprises in its limited membership both men and women, and aims to promote all dramatic, oratorical, and literary activities.

The Scribblers' Club aims to develop talent in original literary work. Meetings are held every two weeks, the programs consisting entirely of poems, essays, sketches, or stories written by the members. Membership is open to both men and women.

The Art Club aims to stimulate interest in art. The club meets twice a week and the members draw from the live model and from casts. Membership is limited to twenty. Candidates are expected to submit drawings.

The University of Colorado Debating Society was organized for the purpose "of cultivating a correct mode of speaking and qualifying its members by practice to express their opinions in public in a correct manner". The Society spends most of its time in senate and parliamentary practice. Membership is open to men of the University who are interested in debating and oratory.

The E. V. U. Debating Club was organized for the purpose of increasing the opportunities for training in public speaking and parliamentary law at the University. Joint debates are carried on with the University of Colorado Debating Society. Membership is open to men of the University.

The Scoop Club limits its membership to students who have had experience in newspaper reporting.

The Civic Club, composed of students interested in political and governmental problems, is a member of the Intercollegiate Civic League. This club publishes the Civic Quarterly.

Le Cercle Francais is an informal club which meets every two weeks for the purpose of obtaining practice in the French language, which is used exclusively. Plays are read and performed, various games are played, and the work of the classroom is supplemented in every possible way.

The University of Colorado Menorah Society is a member of the Intercollegiate Menorah Association. Its object is the study and

advancement of Jewish culture and ideals. Membership is open to any student of the University interested in these subjects.

The Deutscher Verein is composed of students and instructors in the Department of Germanic Languages. The aim of the organization is to promote interest in the living language, the music, and the customs of Germany. The Verein meets twice a month on Thursday evening. Only German is spoken at the meetings.

The Players' Club is organized for the purpose of promoting dramatic study and gives one or more public presentations during the year.

The Colorado University Chapter of The Intercollegiate Socialist Society aims to promote an intelligent interest in Socialism.

The Civil Engineers' Society, the Electrical Engineers' Society—a student branch of the American Institute of Electrical Engineers, and the University of Colorado branch of the American Society of Mechanical Engineers, have been organized by the students in the College of Engineering. These societies meet every two weeks. In each original papers on questions of technical interest are presented and discussed. These three societies joined as "The Associated Engineering Societies" publish the Journal of Engineering. The Colorado Engineers' Magazine is published by the students of the College of Engineering.

ASSOCIATED ALUMNI

The Associated Alumni of the University of Colorado is composed of all the graduates of the University of Colorado and of all former students who have been in attendance at the University at least one year. The organization aims to promote the best interests of the University of Colorado and to unite the alumni for mutual advantage. In furtherance of these objects it maintains a permanent secretary in Boulder and publishes a monthly magazine known as "The Colorado Alumnus". The legislative and executive powers are vested in the Alumni Senate, which is made up of senators elected from the alumni at large, and representatives of the nineteen local alumni organizations in the principal towns and cities of Colorado and in many cities in other states. The Alumni Senate meets in Boulder in October on the Annual Home-Coming Day, and in June at Commencement.

HIGH-SCHOOL DAY

The observance of High-School Day has been made one of the regular features of the academic year. The purpose is to afford to the senior students of the high schools an opportunity of visiting the State University, inspecting its buildings and grounds and so far as possible learning the scope and spirit of its life and work.

COLLEGE OF LIBERAL ARTS

FACULTY

- LIVINGSTON FARRAND, A.M., M.D., LL.D., President of the University.
FRED B. R. HELLEMS, Ph.D., LL.D., Dean; Professor of Latin.
J. RAYMOND BRACKETT, Ph.D., Dean of the Graduate School; Professor of Comparative and English Literature.
IRA M. DELONG, A.M., LL.D., Professor of Mathematics.
CHARLES C. AYER, Ph.D., Professor of Romance Languages.
GEORGE NORLIN, Ph.D., Professor of Greek.
FRANCIS RAMALEY, Ph.D., Professor of Biology.
MELANCHTHON F. LIBBY, Ph.D., Professor of Philosophy.
JOHN BERNARD EKELEY, Ph.D., Sc.D., Professor of Chemistry.
RUSSELL D. GEORGE, A.M., Professor of Geology.
THEODORE D. A. COCKERELL, Sc.D., Professor of Zoology.
GEORGE M. CHADWICK, Professor of Music.
JAMES F. WILLARD, Ph.D., Professor of History.
OLIVER C. LESTER, Ph.D., Professor of Physics.
FRANK E. THOMPSON, A.B., Director of the College of Education; Professor of Education.
JUNIOUS HENDERSON, A.B., Curator of Museum; Professor of Natural History.
JOHN S. McLUCAS, A.M., Professor of English.
GRACE FLEMING VAN SWERINGEN, Ph.D., Professor of Germanic Languages.
MILO G. DERHAM, Ph.D., Director of the Summer Session; Professor of Latin.
LAWRENCE W. COLE, Ph.D., Director of the School of Social and Home Service; Professor of Psychology.
LORAN D. OSBORN, Ph.D., Director of the Extension Division; Professor of Sociology.
FREDERICK A. BUSHEE, Ph.D., Director of the College of Commerce; Professor of Economics and Sociology.
RALPH D. CRAWFORD, Ph.D., Professor of Mineralogy and Petrology.
HARRY A. CURTIS, B.S. (Ch.E.), Ph.D., Professor of Physical Chemistry.

- S. ANTOINETTE BIGELOW, A.M., Dean of Women; Assistant Professor of Literature.
- C. HENRY SMITH, Ph.B., Librarian; Assistant Professor of Bibliography.
- WILLIAM A. COOK, Ph.D., High-School Visitor; Assistant Professor of Education.
- MAX M. ELLIS, Ph.D., Sc.D., Assistant Professor of Biology.
- CARL C. ECKHARDT, Ph.D., Assistant Professor of History.
- FRANK L. CLAPP, Ph.D., Superintendent for Western Colorado (University Extension Division); Assistant Professor of Education.
- PHILIP G. WORCESTER, A.M., Assistant Professor of Geology.
- WILLIAM F. BAUR, Ph.B., Assistant Professor of Germanic Languages.
- ARNOLD J. LIEN, Ph.D., Assistant Professor of Political Science.
- JAY W. WOODROW, Ph.D., Assistant Professor of Physics.
- JAMES N. ASHMORE, Director of Physical Education.
- HELEN MASTERS BUNTING, Director of Physical Education for Women.
- WILLIAM MACLEOD RAINE, A.B., Lecturer on Journalism.
- *WILLIAM R. BRACKETT, A.B., Instructor in Physics.
- WILLIAM V. CASEY, Instructor in Education.
- CHARLES F. POE, A.M., B.S. (Phar.), Instructor in Chemistry.
- PAUL M. DEAN, A.M., Instructor in Chemistry.
- SAMUEL S. KINGSBURY, Ph.D., Instructor in Education.
- *LORENA UNDERHILL, A.M., Instructor in Philosophy.
- RUTH M. SHELEDY, A.M., Instructor in German.
- JOHN H. V. FINNEY, B.S. (E.E.), Instructor in Physics.
- JESSIE HUTSINPILLAR, A.M., Instructor in English.
- MARIE SORENSON, A.M., Instructor in English.
- CLARIBEL KENDALL, A.M., Instructor in Mathematics.
- FRANCIS WOLLE, A.B., Instructor in English Literature.
- HENRY M. SAYRE, Instructor in Accounting.
- ESTELLE M. KYLE, A.M., Instructor in Education.
- FLORENCE GALLIGAN JOSLYN, A.M., Instructor in Education.
- DOROTHY M. BURTON, A.B., Instructor in English Literature.
- ERSKINE R. MYER, A.B., Instructor in English.
- EDNA REYNOLDS, A.M., Instructor in Psychology.
- CRAIG M. BOUTON, A.B., Instructor in Chemistry.
- MAUD E. CRAIG, A.M., Instructor in Latin and in Greek.

* On leave of absence, 1915-1916.

ARTHUR T. EVANS, A.M., Instructor in Biology.
ETIENNE B. RENAUD, A.M., Instructor in Romance Languages.
EDWIN B. PLACE, A.B., Instructor in Romance Languages.
LEONARD C. JONES, A.B., Instructor in Physics.
IRENE P. MCKEEHAN, A.B., Instructor in English.
HUGH C. PRYOR, A.M., Instructor in Education.
NATHAN ALTSHILLER, Sc.D., Instructor in Mathematics.
LAWRENCE HURST, A.M., Instructor in History.
W. SCOTT BOYCE, A.M., Instructor in Economics.
JOHN MCCHESENEY, A.B., Instructor in Philosophy.
JAMES H. COWLES, A.B., Instructor in Life Insurance.
MAY SNYDER, A.B., Assistant in Romance Languages.
HELEN A. LEONARD, A.B., Assistant in Biology.
ROBERT M. BURNS, A.B., Assistant in Chemistry.
CLIFFORD BANTA, A.B., Assistant in Chemistry.
FRANK F. BEVERLY, B.S. (Ch.E.), Assistant in Chemistry.
NORMAN E. A. HINDS, A.B., Assistant in Geology.
JAMES TERRY DUCE, A.B., Assistant in Geology.
WINIFRED BRAMMER, A.B., Assistant in History.
HELEN MOORE, Assistant in History.
ADELBERT J. GREENE, Assistant in Physics.
GLADYS C. CURTIS, A.B., Assistant in Education.
ALICE DOWNING, A.M., Assistant in English.
FLORENCE M. FARRINGTON, A.M., Assistant in German.
GERTRUDE GATES, A.B., Assistant in German.
EVA FREEMAN, A.B., Assistant in Psychology.
ARCHIBALD STOCKDER, A.B., Assistant in Economics.
LESLIE M. LECRON, Assistant in Gymnasium.
EDWIN PATTON, Assistant in Gymnasium.
BEATRICE BOLAN, Assistant in Physical Education for Women.

EQUIPMENT

LABORATORIES

THE PHYSICAL LABORATORY—The Department of Physics occupies the entire first floor, two hundred feet by sixty feet, of the Hale Science Building, with a large modern lecture room on the second floor. The laboratories are large and well supplied with gas, water, direct and alternating current, and the ordinary apparatus for students' use. There are rooms for advanced and research work equipped with special apparatus particularly in light and electricity. A well equipped shop and a department library also add greatly to the efficiency of the department.

CHEMICAL LABORATORY—The basement of the Chemistry Building contains a laboratory for organic and physiological chemistry, a laboratory for food analysis, a laboratory for sanitary water analysis, and the main stock and acid room. On the first floor are the laboratories for general inorganic chemistry and for qualitative analysis, a private laboratory, a laboratory for quantitative analysis, a balance room, a combustion room, and the stock distributing room. The second floor contains the main lecture room with an amphitheatre seating two hundred and fifty students, the lecture desk being supplied with water, gas, suction pumps, draught, and electric current; on this floor also are a room for the storage of lecture apparatus, a smaller lecture room seating eighty students, the chemical library, the professor's study and private laboratory, a laboratory for technical and gas analysis, and a laboratory for physical chemistry. Each desk in the various laboratories is equipped with gas, water, and sink, and, in the organic laboratory, with suction pumps. The ventilation is accomplished by the direct-indirect system, assisted by the hoods and three horsepower electric motors and rotary fans. The laboratories for physical and advanced analytical chemistry are equipped with the proper apparatus for thorough experimental work in these subjects. The chemical library, to which students in the laboratories have access at any time, besides reference books on chemical subjects, contains bound files of the chief chemical journals of the world.

BIOLOGICAL LABORATORIES—The Biological Laboratories, located in the Hale Science Building, provide accommodations for work in general biology, zoology, and botany. The equipment is adequate for large undergraduate classes and for a limited number of advanced students. Students have ready access to the museum, herbarium, and department library. A summer mountain laboratory is maintained at Tolland, Colorado (altitude 8,889 feet), for work in plant and animal ecology.

GEOLOGICAL, MINERALOGICAL, AND GEOGRAPHICAL LABORATORIES—The west wing of the new fire-proof science building now houses the departments of Geology, Mineralogy, and Geography. The building was planned for the use of these departments and is considered one of the best of its kind in the country.

In order to meet the increasing demand for instruction in geography and physiography, the department has been equipped with the most approved geographical and meteorological apparatus, including most of the instruments used in the U. S. Weather Bureau.

The Department of Geology has good working collections of mineral and rock specimens.

The laboratories are equipped with apparatus for chemical and optical mineralogy and petrology. The equipment for geologic surveying and mapping is practically complete.

The library of the department consists of about 3,000 volumes. It receives all United States and State Geological Survey reports and several important journals and magazines, and contains the recent text and reference books on geology, mineralogy, petrology, geography, and meteorology.

THE PSYCHOLOGICAL LABORATORY—The Psychological Laboratory occupies four rooms on the third floor of the Liberal Arts Building. It is well equipped for instruction and training in physiological and experimental psychology. The equipment includes the apparatus necessary for general training courses in psychology and psychological methods, chronographs and recording appliances of various kinds, microscopic and lantern slides of brain sections, models, charts, a complete set of anthropometric instruments, etc. Instruments are provided for typical experiments in psychophysics, sensation, perception, association, reaction and movement. Constant additions are being made to the equipment.

MUSEUM AND CABINETS

THE ZOOLOGICAL COLLECTIONS include vertebrate skeletons and skulls, mounted mammals and study skins, mounted birds and study skins, eggs and nests, fishes, reptiles, amphibians, crustaceans, insects, and mollusks. Special importance attaches to the large collection of land, fresh-water, and marine shells, particularly rich in Rocky Mountain and Pacific Coast material; to fresh-water fishes from various parts of the world, including a large series from Colorado; to a good series of western reptiles and amphibians; and to a collection of Colorado butterflies.

THE BOTANICAL COLLECTION consists of a large series of mounted specimens, including seed plants, lichens, fungi and algæ, a display case of tropical seeds and fruits, a representative series of tropical woods and a collection of economic woods of the United States.

THE GUGGENHEIM BIOLOGICAL COLLECTION, purchased with funds placed at the disposal of the Board of Regents by Simon Guggenheim, consists of a fine series of the nests and eggs of birds taken by Mr. Dennis Gale at various altitudes in Colorado, with the accompanying field notes; also of a valuable collection of mounted birds and mammals, chiefly from Colorado and adjacent states.

THE MINERALOGICAL AND GEOLOGICAL COLLECTION consists of a large series of typical rocks, minerals, Colorado ores, microscopic sections of rocks, ores and minerals, wooden models of crystals, etc. They include both display and study specimens.

THE GUGGENHEIM MINERAL COLLECTION, the gift of Simon Guggenheim, consists of over 1,000 carefully selected type mineral specimens, which will be kept together for reference. It includes a large number of rare minerals not common in university cabinets, and is an extremely valuable addition to the equipment of the Department of Geology.

THE ETHNOLOGICAL COLLECTIONS consist chiefly of material illustrating the ancient culture of the southwestern United States, particularly the pottery, with many stone implements from Ohio and elsewhere, and ethnological material from the Philippines. These collections are increasing very rapidly. At present there are eleven cases of display material, besides many large objects not in cabinets.

THE PHOTOGRAPH AND LANTERN SLIDE CABINETS of the Biology and Geology departments and Museum contain several thousand

negatives, prints and lantern slides illustrating various biological and geological phenomena.

THE PALEONTOLOGICAL COLLECTIONS contain great quantities of Colorado marine invertebrates, very large numbers of Tertiary insects and plants from the Lake Beds of Florissant, Colorado, Cretaceous plants from various parts of the State and from Kansas, Paleozoic plants from the coal measures of the eastern states, many thousands of Tertiary and Pleistocene marine invertebrates from the Atlantic and Pacific coasts, a representative collection of Paleozoic invertebrates from the eastern states and Mississippi Valley, many invertebrate fossils from Europe, Panama, and Mexico, and a few important fossil vertebrates, mostly from Colorado.

THE MUSEUM is temporarily located in the Hale Science Building, and contains the paleontological, biological, and ethnological cabinets and part of the mineralogical collections. A large portion of the material hereinbefore described is considered a part of the Museum, though some of the most valuable study collections belong to the Biology and Geology departments, and all of the material in the Museum is intended for the use of the various teaching departments, of the general public, and of specialists working upon lines represented in the collections. More than forty display cases contain suitable material on exhibition, the balance being in drawer cabinets, where it may be examined by students and others interested. Large quantities of duplicates are being collected for class use, research, and exchange purposes. The Museum is at present the depository of the paleontological collections of the Colorado Geological Survey. Several loan collections are also in the cabinets.

ART COLLECTIONS

THE PHILLIPS ART COLLECTION is named from the donors, Mr. and Mrs. Ivers Phillips. It is contained in rooms on the second floor of the east wing of the Macky Auditorium. The masters of painting are represented by Braun autotypes; the works in architecture and sculpture, by large photographic reproductions, casts and several hundred glass transparencies.

THE FARNSWORTH COLLECTION OF COINS was given to the University by Dr. Wilson A. Farnsworth, of Cæsarea, Cappadocia. It consists of some three hundred and fifty Greek, Roman, Byzantine, mediæval, and modern coins. The collection is on exhibition on the third floor of the Arts Building.

COURSES OF STUDY

INTRODUCTORY

In connection with the requirements for graduation the following general tendencies may be noted. An attempt has been made to map out an intelligent and reasonable group system which shall leave adequate freedom for individual needs and abilities, and, at the same time, prevent undesirable scattering of the student's energies. Provision is made for a combination of certain fundamental subjects and free electives with special work that shall be more scholarly and more finally valuable both for cultural attainments and scientific efficiency.

Moreover, the plan adapts itself readily to the needs of students who are looking forward to further work in professional and technical schools. Thus, within the College of Liberal Arts itself provision is made for a College of Commerce with various subdivisions and for a College of Education. By combining work in the College of Liberal Arts with work in the technical schools the student may attain the degree of A.B., and either the degree of B.S. in the College of Engineering, or the degree of LL.B. in the School of Law, in six years, or the degree of M.D. in the School of Medicine, in seven years. In summary, then, we have a group system so arranged that the first two years in the College of Liberal Arts provide alike a foundation for more advanced work along University lines and a sound preparation for courses in technical and professional schools. This latter phase of the plan is in accordance with the growing conviction that the college course must do its part in the genuine preparation of students for a vocation, as well as offer every opportunity for the acquiring of a liberal education in the most enlightened sense of the word.

For the purposes of the present group system the various subjects are arranged as follows:

- I. DIVISION OF LETTERS: 6 groups.
- II. DIVISION OF SCIENCE: 7 groups.
- III. DIVISION OF PHILOSOPHY: 3 groups.
- IV. DIVISION OF HISTORY AND ECONOMICS: 3 groups.

With the same general purpose in view, but carried out in logical detail, the College of Commerce and the College of Education have been established.

V. DIVISION OF COMMERCE, organized as the College of Commerce: 4 groups as follows: 1. Banking; 2. Manufacturing; 3. Journalism; 4. Trade, Transportation, Consular Service.

VI. DIVISION OF EDUCATION, organized as the College of Education; a professional group, and groups corresponding to those of the College of Liberal Arts.

Here may also be noted the arrangement for obtaining two degrees in six and seven years by crediting courses in the professional schools as a substitute for the groups and electives of the last two years—an extension of the group system. See pages 55, 106.

VII. ENGINEERING SUBJECTS: equivalent of two years.

VIII. LAW SUBJECTS: equivalent of one year.

IX. MEDICAL SUBJECTS: equivalent of one year.

REQUIREMENTS FOR ADMISSION

See pages 27, 28.

REQUIREMENTS FOR GRADUATION

To attain the degree of Bachelor of Arts students must complete one hundred and twenty-two hours according to the schedule printed below:

Attention is called to the following points:

1. Students must take fifty hours in some scheduled group, including at least five hours in each minor, the adjustment of the remaining hours to be advised by the major professor.

2. Students taking ten hours of either classics, mathematics, or science in the freshman year, shall choose five hours in one of the other groups named, in the sophomore year, unless they have included such five hours in their freshman year.

3. In beginning language courses no credit is given for less than a full year's work.

NOTE—The various branches taught in the College of Liberal Arts are offered in courses of study. A *five-hour course*, as here used, means *five* exercises a week throughout a semester; a course in which the class meets the instructor *once* a week is a *one-hour course*. Three *five-hour courses* successfully pursued for one semes-

ter would entitle the student to *fifteen* hours' credit; for one year, to *thirty* hours' credit and so on. Students regularly take fifteen or sixteen hours per week.

On a day appointed before the beginning of each semester all students are required to record their election of studies for that semester. Credit will be granted for such studies only as have been approved by the Committee on Courses. No student will be permitted to change his course, or drop any study, except by vote of the Committee on Courses.

SCHEDULE

FRESHMAN YEAR

- | | |
|---|-----------|
| 1. ENGLISH LANGUAGE | 6 hours |
| 2. CLASSICS, MATHEMATICS, OR SCIENCE..... | 10 hours* |
| 3. HISTORY OR ECONOMICS..... | 6 hours |
| 4. FREE ELECTIVES (8 or 10 hours)..... | 8 hours |
| 5. REQUIRED PHYSICAL TRAINING..... | 2 hours |

32 hours

SOPHOMORE YEAR

- | | |
|---|----------|
| 6. CLASSICS, MATHEMATICS, OR SCIENCE..... | 5 hours* |
| 7. PSYCHOLOGY OR PHILOSOPHY..... | 5 hours |
| 8. GROUP ELECTIVES (Major or Minor)..... | 10 hours |
| 9. FREE ELECTIVES | 10 hours |

30 hours

JUNIOR YEAR

- | | |
|---|-------------|
| 10. GROUP ELECTIVES (Major or Minor)..... | 20-15 hours |
| 11. FREE ELECTIVES | 10-15 hours |

30 hours

SENIOR YEAR

- | | |
|---|-------------|
| 12. GROUP ELECTIVES (Major or Minor)..... | 20-15 hours |
| 13. FREE ELECTIVES | 10-15 hours |

30 hours

* To be in different groups, *e. g.*, if ten hours of classics are elected in the freshman year, then five hours of mathematics or science must be elected in the sophomore year, unless already included in the freshman year.

GROUPS

I DIVISION OF LETTERS

GROUP (a) <i>Major</i> , Latin;	<i>Minors</i> ,	{ Greek, European History.
GROUP (b) <i>Major</i> , Greek;	<i>Minors</i> ,	{ Latin, English Literature or Philosophy.
GROUP (c) <i>Major</i> , German;	<i>Minors</i> ,	{ History, Latin or French.
GROUP (d) <i>Major</i> , { Romance Languages;	<i>Minors</i> ,	{ Latin, German.
GROUP (e) <i>Major</i> , { Literature, Comparative and English;	<i>Minors</i> ,	{ History, English Language.
GROUP (f) <i>Major</i> , { English Language;	<i>Minors</i> ,	{ English Literature, English History.

II. DIVISION OF SCIENCES

GROUP (g) <i>Major</i> , Mathematics;	<i>Minors</i> ,	{ Physics, Astronomy.
GROUP (h) <i>Major</i> , Chemistry;	<i>Minors</i> ,	{ Physics, Mathematics.
GROUP (i) <i>Major</i> , Physics;	<i>Minors</i> ,	{ Mathematics, Chemistry.
GROUP (j) <i>Major</i> , Botany;	<i>Minors</i> ,	{ Zoology, Chemistry.
GROUP (k) <i>Major</i> , Zoology;	<i>Minors</i> ,	{ Botany, Chemistry.
GROUP (l) <i>Major</i> , Geology;	<i>Minors</i> ,	{ Chemistry, Mineralogy.
GROUP (m) <i>Major</i> , Mineralogy;	<i>Minors</i> ,	{ Geology, Chemistry.

III. DIVISION OF PHILOSOPHY

GROUP (n) <i>Major</i> , Philosophy;	<i>Minors</i> , { Psychology, Biology.
GROUP (o) <i>Major</i> , Psychology;	<i>Minors</i> , { Philosophy, Biology.
GROUP (p) <i>Major</i> , Education;	<i>Minors</i> , { Psychology, Biology.

IV. DIVISION OF HISTORY AND ECONOMICS

GROUP (q) <i>Major</i> , History;	<i>Minors</i> , { Economics, Sociology.
GROUP (r) <i>Major</i> , Economics;	<i>Minors</i> , { History, Sociology.
GROUP (s) <i>Major</i> , Sociology;	<i>Minors</i> , { Biology, Psychology.

ORDER OF DESCRIPTION OF COURSES

The various courses offered in the College of Liberal Arts are described in the following order:

Biology.	Library Science and Practice.
Chemistry.	Literature, Comparative and English.
Economics and Sociology.	Mathematics.
Education.	Music.
English Language	Philosophy, Logic and Ethics.
Geology, Mineralogy, and Geography.	Physical Education.
Germanic Languages and Literatures.	Physics.
Greek.	Psychology.
Hebrew.	Romance Languages—
History.	French, Spanish, Italian.
Latin.	Electives in the Professional Schools.

DESCRIPTION OF COURSES*

BIOLOGY†

I. GENERAL BIOLOGY AND SANITARY SCIENCE

1. SANITARY SCIENCE‡. First semester. Tu. Th. 2:00. 2 h.

The germ theory, infection, immunity, specific diseases, public health, elements of school hygiene.

This course and the two following count as required science if taken with any laboratory course in the department.

2. HYGIENE‡. Second semester. Tu. Th. 2:00. 2 h.
3. PRINCIPLES OF HEREDITY. 2 h.

Prerequisite: six hours in the department.

4. HISTORY OF BIOLOGY. First semester. Tu. Th. 10:00. 2 h.
5. PUBLIC HEALTH PROBLEMS.
6. TEACHERS' COURSE IN BIOLOGY.

For courses for graduates only, see page 183.

II. BOTANY

- 1-2. GENERAL BOTANY. Throughout the year. M. W. F. 1:00, lectures; Tu. Th. 1:00-4:00, laboratory. 5 h.

Prerequisite: elementary botany (or biology) and elementary chemistry are desirable but not required.

3. ELEMENTS OF BOTANY‡. First semester. M. W. F. 8:00-10:00.
Repeated second semester. M. W. F. 10:00-12:00. 3 h.

Lectures and laboratory.

A one-semester course intended for only such students as have not had adequate preparation in high-school science. Not open to those with high-school credit in botany or biology. Followed in the second semester by Botany 2 or Botany 4.

* Courses for graduates only are listed and described under Graduate School. See page 183.

† Courses in "General Biology" such as given in some colleges are not offered, but students will find that the work in botany and zoology can be so selected as to meet all needs.

‡ Juniors and seniors will receive only partial credit.

4. ECONOMIC BOTANY. Second semester. M. W. F. 8:00-10:00.
3 h.
Lectures and laboratory.
Some previous work in botany desirable.
5. PLANT ANATOMY. First semester. M. W. F. 2:00-4:00. 3 h.
Prerequisite: Botany 1 or Botany 3.
6. MYCOLOGY. Second semester. M. W. F. 2:00-4:00. 3 h.
Prerequisite: Botany 1 or Botany 3.
7. SPECIAL PLANT MORPHOLOGY. For advanced students.
8. ECOLOGY AND TAXONOMY. (Summer Course.) At the Mountain
Laboratory, Tolland, Colorado.
9. BACTERIOLOGY. Given in the School of Medicine.

For courses for graduates only, see page 183.

III. ZOOLOGY

- 1-2. GENERAL ZOOLOGY. Throughout the year. Tu. Th. 1:00, lec-
tures; M. W. F. either 1:00-3:00 or 10:00-12:00, laboratory.
5 h.

Prerequisite: elementary chemistry and biology are desirable but not required.

- 3-4. PRINCIPLES OF ZOOLOGY. Throughout the year. Tu. Th. 10:00.
2 h. For those who wish to know something of current
zoological and biological theories and discoveries, but who
do not expect to specialize in the department.

Lectures on heredity, evolution, the elements of classification, distribution of animals in time (paleontology) and space (zoogeography), lives of eminent naturalists, etc.

Counts as required science if taken with some laboratory course in the department.

5. ELEMENTS OF INVERTEBRATE ZOOLOGY.* First semester. M. W. F.
10:00-12:00. 3 h.

A one-semester course intended for only those who lack adequate preparation in high-school science. Not open to students with high-school credit in zoology (or biology). Followed in the second semester by Zoology 2 or Botany 3. Students preparing for medicine are advised to elect Zoology 1.

* Juniors and seniors will receive only partial credit.

6. PLANKTONOLOGY. Second semester. Th. 11:00, lecture. 1 h.
Laboratory hours to be arranged. Open on consultation.
Biology and economic relations of the microscopic plants and animals found in ponds, streams and potable waters.
- 7-8. CYTOLOGY. Both semesters. M. W. F. 1:00-3:00; with additional quiz hour to be arranged. 3 h.
Prerequisite: General Zoology or General Botany.
- 9-10. COMPARATIVE ANATOMY OF VERTEBRATES.
Prerequisite: General Zoology.
11. ECONOMIC ZOOLOGY. First semester. Th. 11:00. 1 h.
Animals and animal products useful to man; foods, textiles, drugs, etc.
12. FIELD ZOOLOGY. (Summer Course.)
Given at the Mountain Laboratory, Tolland, Colorado.
- 13-14. ICHTHYOLOGY. For advanced students.
- 15-16. ENTOMOLOGY. Tu. Th. F. 2:00-4:00. 3 h.
For courses for graduates only, see page 183.

CHEMISTRY

1. GENERAL INORGANIC CHEMISTRY*. Throughout the year. 11:00.
3 h.
Lectures.
A course of lectures dealing with the laws and theories of chemistry, together with a study of the elements and their most important compounds.
This course is especially designed for those who have not studied chemistry. Those electing Course 1 must also elect Course 2.
2. GENERAL INORGANIC CHEMISTRY*. Throughout the year. Tu. Th.
8:00 or 1:00. 2 h.
Laboratory and quiz sections.
A detailed course supplementing Course 1.

* All students entering the Department of Chemistry and not presenting university credits in general inorganic chemistry must take courses 1 and 2.

3. **QUALITATIVE ANALYSIS.** First semester. Tu. Th. 8:00 or 1:00
2 h.

A course in the identification and separation of the more common bases and acids.

4. **QUALITATIVE ANALYSIS.** Second semester. Tu. Th. 8:00 or 1:00.
2 h.

A continuation of Course 3.

- 5a. **QUANTITATIVE ANALYSIS.** First semester. 8:00 or 1:00. 3 h.
Laboratory. Gravimetric.

A beginners' course in quantitative analysis, comprising the more important separations and determinations.

- 5b. **QUANTITATIVE ANALYSIS.** First semester. 10:00. 2 h.
Lectures.

A course in chemical calculations, together with a detailed discussion of the methods of quantitative analysis.

This course must be taken with Course 5a.

6. **QUANTITATIVE ANALYSIS.** Second semester. 8:00 or 1:00. 3 h.
Laboratory. Volumetric.

A course on the preparation of standard solutions and their applications in analysis.

7. **ANALYSIS OF IRON AND STEEL.** Either semester. 8:00 or 1:00.
2 h.

A practical course in the laboratory methods in use in the leading steel works.

Prerequisite: courses 5a, 5b, and 6.

8. **SANITARY WATER ANALYSIS.** Second semester. 8:00 or 1:00. 2 h.
A course in the chemical and bacteriological examination of water with regard to its use for drinking purposes.
Prerequisite: courses 5 and 6.

9. **MINERAL WATER ANALYSIS.** Either semester. 8:00 or 1:00. 2 h.
A course in the analytical methods used in the determination of the mineral and gaseous constituents of natural waters.
Prerequisite: courses 5 and 6.

10. **ORE ANALYSIS.** Either semester. 8:00 or 1:00. 5 h.
A course in the analysis of ores, slags, etc., by the technical methods in use in mills and smelters.
Prerequisite: courses 5 and 6.

11. GAS ANALYSIS. Either semester. 8:00 or 1:00. 2 h.

A course in the methods for determining the constituents of gas mixtures, especially as applied to illuminating gas and furnace gases.

Prerequisite: courses 5 and 6.

12. ORGANIC CHEMISTRY. Either semester. 2:00. 4 h.

Lectures.

A study of the methods of preparation and the properties of the more important organic compounds. Special stress is laid upon the theories underlying the subject and the proofs of the constitution of most of the substances studied.

13. ORGANIC CHEMISTRY. Either semester. Time to be arranged.
2 h.

Laboratory.

A laboratory course supplementing Course 12, designed to give practice in organic laboratory methods, and may be taken with Course 12.

14. LABORATORY PRACTICE IN ORGANIC PREPARATIONS. Either semester.
Any three or five periods. 8:00 or 1:00. 3 h. or 5 h.

An advanced course in the preparation of typical aliphatic and aromatic compounds.

Prerequisite: Course 12.

15. ULTIMATE ANALYSIS OF ORGANIC COMPOUNDS. Either semester.
Any two periods. 8:00 or 1:00. 2 h.

A course in the determination of carbon, hydrogen, nitrogen, sulphur, and the halogens in organic compounds.

Prerequisite: courses 5, 6, and 14.

16. FOOD ANALYSIS. Either semester. Any three or five periods.
8:00 or 1:00. 3 h. or 5 h.

A detailed laboratory course giving practice in the official and standard methods for the analysis of foods and the detection of adulterants.

Prerequisite: courses 5, 6, 12, and 14.

17. PHYSICAL CHEMISTRY. Throughout the year. 11:00. 3 h.

Lectures.

A course presenting the conceptions of the modern physico-chemical theories concerning the states of aggregation of matter, solutions, thermo-chemistry, equilibria, chemical kinetics, electro-chemistry, and actino-chemistry.

18. PHYSICAL CHEMISTRY. Throughout the year. 1:00. 2 h.

Laboratory.

A laboratory course supplementing Course 17, consisting of the determinations of densities, molecular weights, thermo-chemical and optical constants, conductivity of solutions, electromotive force, transference numbers, viscosity, surface tension, electrochemical equivalents, transition points, etc.

19. ELECTROCHEMICAL ANALYSIS. Either semester. 8:00 or 1:00. 2 h.

Laboratory practice in the determination and separation of the common metals by electrolytic methods.

20. PHYSIOLOGICAL CHEMISTRY*. First semester. Time to be arranged. 2 h.

Lectures.

This course is given primarily for medical students, but is open to students in other departments.

Prerequisite: courses 13, and either 14 or 15.

21. PHYSIOLOGICAL CHEMISTRY*. First semester. Time to be arranged. 2 h.

Laboratory.

This course is supplementary to Course 20, and must be taken with it.

A laboratory study of the chemistry of enzymes, carbohydrates, salivary digestion, proteins, gastric and pancreatic digestions, bile, putrefaction products, feces, blood, milk, tissues, and urine.

22. INDUSTRIAL CHEMISTRY. Second semester. Time to be arranged. 3 h.

A lecture course on the principal chemical industries.

* In 1916-1917, courses 20 and 21 will be given in the School of Medicine.

23. DRUG ASSAYING. Second semester. Time to be arranged. 5 h.

A laboratory course giving practice in the official and standard methods for the identification, purity, detection of adulteration, and assaying of official drugs.

Prerequisite: courses 5a, 5b, and 6.

24. HISTORY OF CHEMISTRY. First semester. Time to be arranged. 1 h.

Prerequisite: courses 1, 2, 3, 4.

NOTE—No laboratory period of less than three consecutive hours will be accepted.

ECONOMICS, SOCIOLOGY, AND POLITICAL SCIENCE

I. ECONOMICS

1. INDUSTRIAL HISTORY OF ENGLAND. Two divisions. First semester. M. W. F. 8:00, 2:00. 3 h.

Recitations, readings, lectures.

Outlines the English industrial development from the twelfth century to the present in order to show the genesis of modern industrial customs and rights.

This course is designed to be introductory to all courses in economics.

2. ECONOMIC HISTORY OF THE UNITED STATES. Two divisions. Second semester. M. W. F. 8:00, 2:00. 3 h.

Recitations, readings, lectures.

Traces the growth of industry, agriculture, commerce, transportation, population, and labor from the simple, isolated, agricultural communities of the colonies, to the complex industrial and commercial society of today.

Logically follows Course 1.

3. PRINCIPLES OF ECONOMICS. Two divisions. Both semesters. M. W. F. 9:00, 10:00. 3 h. Not open to freshmen.

The purpose of this course is to teach fundamental principles; to open the field of economics in the way most helpful to further and more detailed study of special problems, and to give those not intending to specialize in the subject an outline of the general principles of economics.

4. PRINCIPLES OF ADVERTISING. First semester. Th. 11:00. 1 h.
See the Department of Psychology.

5. STATISTICS. Second semester. Tu. Th. 1:00. 2 h.

This course deals with elementary principles together with their applications, special emphasis being given to vital statistics.

6. ECONOMIC AND COMMERCIAL GEOGRAPHY. First semester. M. W. F. 2:00. 3 h.

A study of the influence of the geographic environment on the economic life and development of peoples.

7. HISTORY OF COMMERCE. Second semester. M. W. F. 2:00. 3 h.

A study of the development of the world's commerce with special attention to modern commercial organization.

8. LABOR PROBLEMS. First semester. Tu. Th. 1:00. 2 h. Not open to freshmen.

Recitations, reports, lectures.

Such subjects as woman and child labor, immigration, labor organizations and employers' associations, profit sharing, co-operation, industrial education, and social insurance are studied in their relation to the quantity and conditions of labor.

9. MONEY AND BANKING. Throughout the year. Tu. Th. 8:00. 2 h.

Lectures, readings, discussion.

The history and theory of money, credit, and banking; special attention given to present-day problems of money and banking in the United States.

Prerequisite: Course 3.

10. TRANSPORTATION. Second semester. Tu. Th. 1:00. 2 h.

Recitations, readings, lectures.

A study of the development of rail and water transportation in the United States; special emphasis laid on the condition of railway transportation at the present time. Rates and rate-making, finance, traffic, operation, and legislation, are studied in turn.

Prerequisite: Course 3.

11. CORPORATIONS. First semester. Tu. Th. 8:00. 2 h.

Lectures, discussions, reports.

A study of the nature and organization of corporations. A comparison of the corporate form with other forms of business enterprise. The methods of forming corporations; types of securities; methods of marketing stocks and bonds; financing an enterprise; distribution of earnings; reorganization; problems of regulation and control.

Prerequisite: Course 3.

12. TAXATION. First semester. Tu. Th. 2:00. 2 h.

A general study of the theory of public finance and a more detailed study of the revenue systems in the United States.

Prerequisite: Course 3.

13. LIFE INSURANCE. Second semester. Tu. Th. 3:00. 2 h.

14. THEORY AND PRACTICE OF ACCOUNTING. Second semester. M. W. F. 9:00. 3 h.

15. TRUSTS. Second semester. Tu. Th. 2:00. 2 h.

Lectures, discussions, reports.

A study of the economies of integration and combination. The trust movement—its causes, characteristics, and monopoly tendencies. Competition and regulation; the Federal Trade Commission; proposed solutions of the trust problem.

Prerequisite: Course 3.

16. BUSINESS ORGANIZATION AND SCIENTIFIC MANAGEMENT. Second semester. Tu. Th. 8:00. 2 h.

A study of the forms, methods, and principles of business organization and management; production, administration, and sales; records and accounts; systems of wage payments; principles of efficiency and scientific management.

Prerequisite: Course 3.

17. MATHEMATICAL THEORY OF INVESTMENTS. First semester. Tu. Th. 10:00. 2 h.

See Department of Mathematics.

For courses for graduates only, see page 197.

II. SOCIOLOGY

1. PRINCIPLES OF SOCIOLOGY. Throughout the year. Tu. Th. 10:00.

2 h. For juniors and seniors.

Lectures, readings, discussions.

In this course an attempt is made to formulate the fundamental laws of association, with special reference to their relation to social progress. Such topics as the influence of the physical environment, natural selection, welfare, division of labor, sex and sexual selection, heredity, imitation, social oppositions, art, science, and religion, will be discussed with reference to their effects on social progress.

2. PROBLEMS IN SOCIOLOGY. Throughout the year. Tu. Th. 9:00. 2 h.

Lectures, assigned readings, discussions.

This course takes up the study of our various social institutions, placing special emphasis upon the family, its origin, function and problems. The course includes a study of immigration, race problems, poverty, crime, and kindred subjects.

Prerequisite: Economics 3.

3. SOCIALISM. First semester. Tu. Th. 9:00. 2 h.

Proposals for the reorganization of society on a socialistic basis will be studied historically and critically. Writings of the early French and English socialists will be reviewed, but the major part of the course will be devoted to the study of German scientific socialism.

Prerequisite: Economics 3.

4. ADVANCED THEORY OF SOCIOLOGY. Second semester. Tu. Th. 9:00.

2 h. For advanced students only.

A critical study of the theories of the leading sociologists beginning with Auguste Comte.

For courses for graduates only, see page 198.

III. POLITICAL SCIENCE

1. NATIONAL ADMINISTRATION. First semester. M. W. F. 8:00. 3 h.

Open to freshmen.

An elementary course in American Government, intended as a preparation for advanced work in political science, for

teaching in secondary schools, and for good citizenship. Deals with the organization and work of the national government in all of its aspects.

2. STATE AND LOCAL GOVERNMENT. Second semester. M. W. F. 8:00. 3 h. Open to freshmen.

Deals with problems in state and local government, development of state institutions, new departures in legislation and administration, the initiative, the referendum, the recall, the budget, working of our courts, state police development, civil service and the short ballot movement; special emphasis on Colorado.

3. COMPARATIVE EUROPEAN GOVERNMENT. Second semester. M. W. F. 1:00. 3 h.

A study of the organization and workings of the governments of representative European states, especially Great Britain, France, Germany, and Switzerland; party systems and cabinet government in these countries.

Prerequisite: courses 1 and 2.

4. MUNICIPAL GOVERNMENT. First semester. M. W. F. 1:00. 3 h.

A study of city charters, methods of city organization and administration, relation of the city to the state, home rule movement, commission government, the city manager type, short ballot and other reforms, comparisons with European cities.

Prerequisite: Course 2.

5. POLITICAL PARTIES AND PARTY PROBLEMS. First semester. M. W. 11:00. 2 h.

This course deals with the functions, history, and organization of political parties, party machinery, and such current party problems as direct primaries, nomination by petition, non-partisan elections, preferential voting, corrupt practices acts, and methods of party finance.

Prerequisite: Course 1 or Course 2.

6. CONSULAR AND DIPLOMATIC SERVICE. First semester. M. W. 11:00. 2 h. Alternates with Course 5.

Outline of the growth of international relations, the mode of conducting foreign affairs, methods of making, interpreting

and terminating treaties and compacts, organization, duties and immunities of consular and diplomatic agents, diplomatic relations with Latin America and the Far East.

Prerequisite: Course 1.

7. INTERNATIONAL LAW. Second semester. M. W. 11:00. 2 h.
Alternates with Course 8.

A study of the nature, sources and sanction of international law; status of nations; rules of peace, neutrality and war; doctrine and rules of neutrality; international rights of persons and property in time of peace and war; and The Hague Peace Conference.

Prerequisite: courses 1 and 3.

8. MUNICIPAL PROBLEMS. Second semester. M. W. 11:00. 2 h.

In this course will be considered some of the prominent problems of the modern city. Attention will be given to such questions as municipal ownership and regulation of public utilities, franchises, accounting and budget making, markets, city planning, municipal lodging and housing, recreation facilities, dust prevention, unemployment, the garden city movement, the social evil, public health, and other problems.

Prerequisite: Course 4.

EDUCATION

1. GENERAL PSYCHOLOGY. (PSYCHOLOGY 1.) Two sections. First semester. M. W. F. 1:00, 2:00, with an additional hour to be arranged for recitations and conferences. 3 h.
2. EDUCATIONAL PSYCHOLOGY. (PSYCHOLOGY 7 or 2.) Second semester. M. W. F. 1:00 or 2:00. 3 h.
3. PRINCIPLES OF EDUCATION. First semester. M. W. F. 8:00. 3 h.

An elementary discussion of the nature, scope, and aims of Education; an examination of those facts, theories, and hypotheses of biology, physiology, anthropology, psychology, sociology, and economics which would seem to have significance for educational theory; a synthesis of what is found to be pertinent into a working creed for the educator.

4. PRINCIPLES OF INSTRUCTION. Second semester. M. W. F. 8:00.
3 h.

An examination, classification, and evaluation of the means and materials of Education: human behavior and the possibilities of its modification or control; the learning process in its relation to the teaching process; educational agencies and educational institutions; the curriculum; the child and the curriculum; educational economy—school organization; educational results. This course is a natural continuation of Principles of Education.

Prerequisite: courses 1, 2, and 3, or their equivalent.

- 5-6. PRINCIPLES AND PRACTICE OF TEACHING. Both semesters. Tu.
Th. 8:00 and other hours to be arranged. 2-6 h.

The application of principles to practice; the method and methods of the teacher in the elementary and secondary schools; comparative study of general and special methods; improvements in methods; classroom problems and their solution; the learning process and its direction; how we think and learn to think; how to study; how to teach others to study; essentials in the learning and teaching of the elementary and secondary school subjects.

Practice teaching is done in the Boulder Training School (an ungraded school managed by the University), and in the Boulder High School. The student teaches under real school-room conditions except that classes are smaller, beginning teachers are helped more, and supervision emphasizes the learning rather than the teaching process.

Prerequisite: courses 1, 2, 3, and 4, or their equivalents, senior standing, and the instructor's permission.

7. HISTORY AND PHILOSOPHY OF EDUCATION. First semester. M. W.
F. 10:00. 3 h. Open to all except freshmen.

This course deals with the history of culture and civilization, of social and intellectual as well as of definite school influences in China, India, Persia, and other Asiatic countries, as well as in Greece and Rome. It also deals with primitive Christian and Mediæval education.

8. HISTORY AND PHILOSOPHY OF MODERN EDUCATION. Second semester. M. W. F. 10:00. 3 h. Open to all except freshmen.

In this course it is necessary to confine the work more strictly to academic education. The course deals with all the great reform movements from the Revival of Learning to the present day.

9. COMPARATIVE STUDY OF SCHOOL SYSTEMS. Throughout the year. Tu. Th. 10:00. 2 h.

A detailed comparative study of the school systems of Germany, France, England, and the United States with respect to ideals, organization, administration, methods, and efficiency.

Prerequisite: courses 1, 2, 3, 4, 7, 8, or their equivalents.

10. ANTHROPOLOGY. First semester. M. W. F. 9:00. 3 h.

An introductory study of the natural history of man; a survey of his physical and intellectual evolution; his agreements with and divergencies from allied animals; theories of time and place of origin; the main divisions of mankind and their general physical and mental characteristics; the general laws of man's existence and development, his relation to the rest of nature; beginnings and transmission of culture; chief divisions of primitive culture; prehistoric archæology.

11. ETHNOLOGY. Second semester. M. W. F. 9:00. 3 h.

A comparative study of typical tribes and peoples in their respective geographical habitats; the cultural conditions as differentiating peoples; the variety and range of human activities; the elementary thoughts of mankind—primary elements of culture and mental life; the origin, growth, and present condition of the social, religious, industrial, political, and scientific occupations and institutions of various peoples; the identity of "the human" in the variety of peoples; culture grades and their causes.

12. SOCIAL PSYCHOLOGY. (PSYCHOLOGY 11.) First semester. Tu. Th. 9:00. 2 h.

13. EDUCATION AND SOCIETY. Second semester. Tu. Th. 9:00. 2 h.

A study of the interrelations of education and society; society's responsibilities to, and need of, the school; the school's

duty to, and expectations of, society; educational institutions and forces other than the school; society an educational device.

Prerequisite: courses 1, 2, 3, and 4, or their equivalents.

14. PRACTICUM IN EDUCATION. Either or both semesters. Th. 2:00-4:00. 2 h.

The application of educational principles and theories to special problems of practice—"educational engineering"—such as the supervision and criticism of class work; courses of study; the functions of school boards, superintendents and principals; the improvement of teachers in service; teachers' meetings.

The course will be conducted on the conference plan; personal observation and investigation of neighboring schools; detailed written reports; collateral readings. It will also do to some extent the work of an educational journal club by devoting some time to current literature, events, contemporary educators, articles, books, educational news, and experiments.

Prerequisite: some teaching experience, senior or graduate standing, and the instructor's permission.

15. SEMINAR IN EDUCATION. Either or both semesters. Tu. 7:40 p. m. 2 h.

Subject-matter will vary from year to year; special examination and investigation of selected problems of importance in educational theory and practice; provision for independent investigations and for research in special problems.

Prerequisite: senior or graduate standing, and the instructor's permission.

ENGLISH LANGUAGE

1. FRESHMAN ENGLISH. Thirteen sections. Throughout the year.

M. W. F. 8:00, 9:00, 10:00, 11:00, 3:00. 3 h. Required of all Arts freshmen.

Textbook, daily themes, oral exercises.

2. ADVANCED COMPOSITION. Two sections. Both semesters. Tu.

Th. 11:00, 2:00. 2 h.

Textbook, themes.

3. **SHORT STORY.** Second semester. Tu. 7:30. 2 h.

A course in writing short stories under criticism of the instructor and the class, to which only a limited number of apt students are admitted.

4. **ARGUMENTATION AND DEBATE.** Throughout the year. W. 2:00-4:00. 2 h. Not open to freshmen.

At the end of the first semester the University debating squad is selected. Those forming this squad will be given two additional credits. The course may be repeated, but no student shall receive more than a total of ten credits.

5. **PUBLIC SPEAKING.** Throughout the year. Tu. Th. 3:00, and afternoons to be arranged. 2 h. Not open to freshmen.

A study of oratorical style, analysis and writing of orations, practical exercises.

6. **JOURNALISM.** Throughout the year. Tu. Th. 2:00. 2 h. Not open to freshmen.

Lectures, reports, practical work.

7. **ADVANCED JOURNALISM.** Tu. Th. 3:00. 2 h.

Lectures, reports, practical work.

Prerequisite: Journalism.

8. **HISTORY OF THE ENGLISH LANGUAGE.** First semester. M. W. F. 10:00. 3 h.

Lectures and recitations.

9. **ANGLO-SAXON.** First semester. M. W. F. 3:00. 3 h.

Bright's Anglo-Saxon Reader.

10. **ANGLO-SAXON.** Second semester. M. W. F. 3:00. 3 h.

Beowulf.

11. **MIDDLE ENGLISH.** First semester. Tu. Th. 11:00. 2 h.

Supplementary reading, lectures, reports.

Emerson's Middle English Reader.

12. **CHAUCE.** Second semester. Tu. Th. 11:00. 2 h. Not open to freshmen.

Lectures, readings, reports.

Skeat's Texts. *

13. SHAKESPEARE. Both semesters. M. W. F. 11:00. 3 h. Not open to freshmen.

The careful reading of three plays each semester.
Rolfe's Texts.

14. PRE-SHAKESPEAREAN DRAMA. First semester. Tu. Th. 11:00. 2 h. Not open to freshmen.

Lectures, readings, reports.

Manly's Specimens of Pre-Shakespearean Drama.

15. INTERPRETATION OF ENGLISH POETRY. Second semester. Tu. Th. 11:00. 2 h. Not open to freshmen.

Lectures, readings, reports. Each year a different poet is studied.

16. STUDY OF PROSE STYLE. First semester. Tu. Th. 9:00. 2 h. Not open to freshmen.

Lectures, readings, reports.

17. ENGLISH FOR TEACHERS. M. W. F. 9:00. 3 h.

Lectures, reports, discussions.

For courses in Literature, Comparative and English, see page 90.

GEOLOGY, MINERALOGY, AND GEOGRAPHY

I. GEOLOGY

A. Courses for Undergraduates.

- 1-2. GENERAL GEOLOGY. Throughout the year. Daily. 1:00. First half of first semester: M. W. F. 1:00, lectures; Tu. Th. 1:00-4:00, field work. Second half of first semester: M. Tu. W. F. 1:00, lectures; Th. 1:00-3:00, laboratory work. Second semester: M. Tu. W. F. 1:00, lectures; Th. 1:00-3:00, laboratory work. 5 h. each semester.

The course will consist of a study of the principles of geology, with special reference to the geological history of North America. Field study will be an important feature of the course. By special arrangement, students physically unable to take the field work, may register for 4 hours' credit in the first semester.

Students who have completed Geography 1 and who desire Geology 1-2, will receive four hours' credit for the first semester and full credit for the second semester.

Prerequisite: high-school chemistry or college chemistry.

- 3-4. ENGINEERING GEOLOGY. Throughout the year. M. W. F. 11:00, with two hours' additional laboratory work per week, arranged to suit the convenience of the class. 3 h. each semester. Open to upper classmen who are not majoring in geology.

The first semester the course will include a general discussion of the principles of geology. The second semester it will be a study of the geological materials important in engineering.

B. Courses Open to Undergraduates and Graduates.

- 5-6. ECONOMIC GEOLOGY. Throughout the year. First semester. M. W. F. 10:00; second semester, M. W. F. 11:00; with two hours' additional laboratory work a week, arranged to suit the convenience of the class. 3 h. each semester.

A study of the mineral resources of the United States, including the origin and character of ore bodies, the ores of iron, copper, lead, zinc, gold, silver, etc.; the extraction and uses of the metals; fuels, building materials, fertilizers, mineral waters, etc.

Prerequisite: Geology 1-2 or 3; Mineralogy 1-2 is strongly recommended.

- 7-8. ADVANCED GEOLOGY. Throughout the year. M. W. F. 2:00. 3 h. each semester. Given in alternate years. Given in 1916-1917.

A special study of the problems of dynamic, structural, and historical geology.

Prerequisite: Geology 1-2; Mineralogy 1-2 is strongly recommended.

- 9-10. GEOLOGY OF COLORADO. Throughout the year. M. W. F. 2:00. 3 h. each semester. Given in alternate years. Not given in 1916-1917.

A study of the dynamic, structural, historical, and economic geology of Colorado.

Prerequisite: Geology 1-2; or Geography 1, and Mineralogy 1-2.

11. **GEOLOGIC SURVEYING.** First semester. M. W. F. 1:00-4:00; two periods to be arranged. 5 h. Given in alternate years. Given in 1916-1917.

The course is designed to train the student in all kinds of geologic field work. The methods used are those employed by the U. S. Geological Survey.

Prerequisite: superior work in two geology courses and determinative mineralogy; registration only after consultation with the professor in charge.

12. **GEOLOGIC MATERIALS FOR INDUSTRIAL CHEMISTRY.** Second semester. M. W. F. 10:00. 3 h.

A study of the occurrence, properties and uses of geological products of economic value in chemical industries.

Prerequisite: a year in general chemistry.

13. **GEOLOGY. A CULTURE COURSE.** Throughout the year. M. W. 2:00. 2 h. Open to juniors, seniors, and graduates.

A lecture and reading course for general culture rather than scientific training.

This course does not count toward the science requirement, nor will credit be given to students who have credit for Geology 1-2.

- 14-15. **PALEONTOLOGY.** Throughout the year. 3 h. each semester.

The course is open to advanced students in geology and biology, on consultation with the professor.

It will include lectures on the principles of paleontology, and the facts concerning the development of types which characterize the several periods of geologic time; laboratory work in the identification, classification and description of fossil animals and plants, and the discussion of their stratigraphic and biologic position and significance.

NOTE—Students expecting to teach high-school geology or physical geography are advised to take Geology 1-2, 9-10, or Geography 1 and 3.

For courses for graduates only, see page 187.

II. MINERALOGY AND PETROLOGY

A. *Courses for Undergraduates.*

- 1-2. DETERMINATIVE MINERALOGY. Throughout the year. Th. 8:00, lectures and recitations; Tu. 8:00-11:00, Th. 9:00-11:00, laboratory. 3 h. each semester. Supplemented by Course 5.

The course includes elementary crystallography, descriptive mineralogy, the determination of minerals of economic importance by chemical and physical tests, and the study of collections of economic minerals.

Prerequisite: a course in general inorganic chemistry.

B. *Courses Open to Graduates and Undergraduates.*

- 3-4. ADVANCED MINERALOGY. Throughout the year. Th. 11:00, lectures and recitations; Tu. 8:00-11:00, laboratory. 2 h. each semester.

In this course minerals not previously studied are determined in the laboratory; a large part of the time is given to the rock-making minerals. Descriptive mineralogy is the chief subject of the lectures and recitations.

Prerequisite: Mineralogy 1-2.

5. FIRE ASSAYING. Second semester. F. 1:00, lectures and recitations; M. W. 1:00-4:00, laboratory. 3 h. For students who have taken or are taking determinative mineralogy and quantitative analysis.
6. ADVANCED CRYSTALLOGRAPHY. First semester. 2 h. May be continued the second semester as a one-hour or two-hour course.

This course includes measurement of crystal angles with the reflecting goniometer, determination of indices and axial ratios, stereographic projection, and crystal drawing.

- 7-8. OPTICAL MINERALOGY, PETROGRAPHY. Throughout the year. 3 h. each semester. Open on consultation. This course should be taken in the senior year by students who expect to do graduate work in geology.

Lectures, recitations, laboratory.

The course begins with the study of the optical properties of minerals and the laboratory determination of the optical constants of rock-making minerals. More than half the time is given to microscopic petrography.

For courses for graduates only, see page 187.

III. GEOGRAPHY

1. PHYSICAL GEOGRAPHY (PHYSIOGRAPHY). First semester. M. Tu. W. F. 9:00, lectures and recitations; Th. 9:00, 12:00, field or laboratory work. 5 h.

This course includes a study of the atmosphere, the waters of the earth, the agencies of geologic and geographic changes, and the development and history of the physical features of the earth. The course is adapted to the needs of those who may wish to teach physical geography or physiography in the high schools.

It may be taken with Geography 2 and 4 or 3 and 4 to complete ten hours of science. Students who have completed Geology 1-2 and who desire this course will receive four hours' credit.

2. GEOGRAPHY OF NORTH AMERICA. Second semester. M. W. F. 9:00. 3 h.

A study of the natural resources of the continent as factors in its cultural, historical and industrial development.

3. ADVANCED PHYSIOGRAPHY. Second semester. Tu. 10:00, Th. 10:00-12:00; one hour to be arranged. 3 h.

The course is largely a continuation of Geography 1 and deals largely with the laboratory side of the work and the methods of teaching physical geography and physiography.

Prerequisite: Geology 1-2 or Geography 1.

4. CLIMATOLOGY. Second semester. Tu. 8:00-10:00, Th. 9:00. 2 h.

A practical course based on a study of the atmospheric phenomena and geographic conditions which affect the daily life of all races. It includes a discussion of the climatic zones and the relation of climate to crops, industry and health.

May be taken with courses 1 and 2 or 1 and 3 to complete ten hours of science.

GERMANIC LANGUAGES*

- 1-2. ELEMENTARY COURSE. Throughout the year. 8:00, 9:00, 1:00.
5 h.

Grammar, pronunciation, reading; practice in writing and speaking German.

- 3-4. INTERMEDIATE COURSE. Throughout the year. M. W. F. 8:00,
10:00. 3 h.

Reading of selected masterpieces of German literature, such as Lessing's *Minna von Barnhelm*, Schiller's *Jungfrau von Orleans*, Ludwig's *Zwischen Himmel und Erde*, Freytag's *Die Journalisten*.

Prerequisite: Course 1-2, or two years of high-school German. It is strongly recommended that Course 3a-4a accompany Course 3-4.

- 3a-4a. COMPOSITION AND COLLOQUIAL PRACTICE. Throughout the year.
Tu. Th. 8:00, 9:00, 10:00. 2 h.

German themes and letters; drill in syntax and idiom.

Prerequisite: Course 1-2, or two years' of high-school German. It is recommended that Course 3a-4a be taken parallel with Course 3-4.

5. LESSING AS A DRAMATIST. First semester. 3 h.

Study of *Nathan der Weise* and *Emilia Galotti*; readings from Lessing's other works; discussions and reports.

Prerequisite: courses 3-4 and 3a-4a.

6. VON SCHEFFEL'S *EKKEHARD*. First semester. 3 h.

Reading and study of the entire novel.

Prerequisite: course 3-4 and 3a-4a.

7. SCHILLER'S *WALLENSTEIN* AND *DIE BRAUT VON MESSINA*. Second semester. 3 h.

Readings from the other plays of Schiller; discussions and reports.

Prerequisite: Course 5 or 6.

* So far as practicable, the classes in this department are conducted in the German language.

8. **GOETHE'S DRAMAS, EXCLUSIVE OF FAUST.** One semester. 3 h.
Readings, discussions, papers.
Prerequisite: Course 5 or 6.
9. **THE GERMAN DRAMA OF THE NINETEENTH CENTURY.** First semester. 3 h. Open to advanced students who read German with facility.

Reading of representative plays and discussion of the problems which they present.
10. **ADVANCED COMPOSITION.** One semester. 2 h. Open to advanced students on consultation; recommended to prospective teachers of German.

Themes on various aspects of German life, with discussions in the German language.
11. **GERMAN PRONUNCIATION.** One semester. 1 h.

Special drill on the German sounds; the reading of selected German poems.
Prerequisite: courses 1-4.
12. **GOETHE'S FAUST: PARTS I AND II.** Second semester. 3 h. Open to graduate students and seniors.
13. **STUDIES IN THE HISTORY OF THE GERMAN NOVEL.** One semester. 3 h. Open to seniors and juniors who read German with facility.

Reading and discussion of selected works.
14. **THE GERMAN NOVELLE.** One semester. 3 h. Open to seniors and juniors who read German with facility.

Reading and discussion of representative stories.
This course alternates with Course 13.
15. **TEACHERS' COURSE.** One semester. 2 h.

The phonetics and pronunciation of German; methods of teaching German to foreigners; examination of grammars and readers; systematic study of one of the texts usually read in high schools.

16. SCIENTIFIC GERMAN. Throughout the year. 2 h.

Prerequisite: Course 1-2, or two years of high-school German.

17. THE HISTORY OF GERMAN LITERATURE FROM THE EARLIEST TIMES TO THE TIME OF KLOPSTOCK. First semester. 3 h. Open to advanced students who read German with facility.

Lectures, collateral reading, reports.

18. THE HISTORY OF GERMAN LITERATURE FROM THE TIME OF KLOPSTOCK TO THE PRESENT. Second semester. 3 h.

Lectures, collateral reading, papers.

19. GERMANIC HERO-SAGAS. One semester. 2 h. Open to advanced students.

Lectures, recitations, collateral reading.

20. GERMANIC MYTHOLOGY. One semester. 2 h. Open to advanced students.

Lectures, recitations, collateral reading.

Primitive Germanic religion, customs and ideals of life, in their relation to German literature.

For courses for graduates only, see page 188.

GREEK

- 1-2. ELEMENTARY COURSE. Throughout the year. 10:00. 5 h.

Goodwin's Grammar. Xenophon's Anabasis, and Lysias' Orations.

3. HOMER'S ILIAD AND EASY PROSE SELECTIONS. First semester. 10:00. 5 h.

Includes review of grammar.

4. PLATO. Second semester. 10:00. 3 h.

The Apology and Crito and selections from the Phaedo.

Prerequisite: equivalent of courses 1-2 and 3.

5. HOMER'S ODYSSEY. Second semester. 10:00. 2 h.

Prerequisite: equivalent of courses 1-2 and 3.

6. TRAGEDY. First semester. 11:00. 3 h.

Aeschylus' Prometheus and Sophocles' Antigone.

7. DEMOSTHENES. First semester. 11:00. 2 h.
Philippic and Olynthiac Orations.
8. PLATO. Second semester. 11:00. 3 h.
Interpretation of the Republic with lectures on Platonism.
9. COMEDY. Second semester. 11:00. 2 h.
Aristophanes' Clouds and Frogs.
10. GREEK HISTORIANS. First semester. 3:00. 3 h.
Selected books of Herodotus and Thucydides.
11. PASTORAL POETRY. First semester. 3:00. 2 h.
Theocritus, Bion, and Moschus.
12. LYRIC POETS. Second semester. 3:00. 3 h.
Early lyric poets with introduction to Pindar and Bacchylides.
13. PROSE COMPOSITION. Second semester. 3:00. 2 h.
14. GREEK POETRY IN ENGLISH. First semester. 9:00. 5 h. Knowledge of Greek not required.
Lectures and study of best translations.
15. CLASSICAL MYTHOLOGY. Second semester. 9:00. 2 h.
Lectures and textbook.
16. GREEK ART. Second semester. 2:00. 2 h.
Lectures and textbook.
17. GREEK CIVILIZATION. Second semester. 9:00. 3 h.
Lectures and reading.
For courses for graduates only, see page 189.

HEBREW

- 1-2. BEGINNERS' COURSE. Throughout the year. 10:00. 3 h.
Study of Genesis, Chapters 1-8.
- 3-4. SECOND-YEAR COURSE. Throughout the year. 1:00. 3 h.
Review of grammar and syntax; translations in Old Testament histories, Psalms, Wisdom Literature, Minor Prophets.

HISTORY

Primarily for Freshmen.

- 1-2. EUROPEAN HISTORY, 376-1789. Throughout the year. M. W. F.
2:00. 3 h.

The first semester's work will end at the year 1300. Either semester's work may be taken separately. This course is a prerequisite for courses 7, 8, 18, 19, and 21, and will admit to courses 9 and 10.

- 3-4. ANCIENT HISTORY TO 800 A. D. Throughout the year. M. W. F.
3 h.

The first semester's work will deal primarily with the history of Greece; the second primarily with the history of Rome, concluding with a brief description of characteristic mediæval institutions. Either semester's work may be taken separately. This course is a prerequisite for courses 13 and 14 and will admit to courses 9 and 10.

Not Open to Freshmen.

5. THE HISTORY AND LITERATURE OF THE HEBREWS TO 300 B. C.
First semester. 2 h.

6. THE HISTORY AND LITERATURE OF THE JEWS FROM 300 B. C. TO
135 A. D. Second semester. 2 h.

7. THE FRENCH REVOLUTION AND THE NAPOLEONIC ERA. First semester.
M. W. F. 9:00. 3 h.

Prerequisite: Course 1-2.

8. EUROPE SINCE 1815. Second semester. M. W. F. 9:00. 3 h.

Prerequisite: Course 1-2.

9. ENGLISH HISTORY. Throughout the year. 3 h.

The political, economic and social history of England. This course or Course 10 is required by the School of Law for entrance.

Prerequisite: either Course 1-2 or Course 3-4 except for students preparing to enter the School of Law.

10. ENGLISH CONSTITUTIONAL HISTORY. Throughout the year. Tu. Th. 2:00. 2 h.

This course or Course 9 is required by the School of Law for entrance.

Prerequisite: as in Course 9.

- 11-12. AMERICAN HISTORY, 1760-1880. Throughout the year. M. W. F. 11:00. 3 h.

The introductory course in American history. The first semester's work will end with the administration of Andrew Jackson. Either semester's work may be taken separately. This course is a prerequisite for courses 22 and 23.

For Juniors and Seniors; for Graduates, upon Consultation.

13. ATHENIAN DEMOCRACY AND ITS ANCIENT CRITICS. One semester. 3 h.

A study of Greek political institutions and Greek political science.

Prerequisite: Course 3.

14. THE FALL OF THE ROMAN REPUBLIC. One semester. 3 h.

Prerequisite: Course 4.

15. THE EARLY CHURCH. To 451 A. D. One semester. 2 h.

Prerequisite: Course 6.

16. THE MEDIÆVAL CHURCH AND THE REFORMATION. Throughout the year. Tu. Th. 10:00. 2 h. Open on consultation.

The course will deal primarily with the institutional side of the mediæval and reformed churches.

17. ENGLISH MEDIÆVAL INSTITUTIONS. Throughout the year. M. W. F. 10:00. 3 h. Open on consultation.

A detailed study, based largely upon source material, of the manor, the gilds, feudalism, and the institutions of the church during the thirteenth and fourteenth centuries.

18. THE RENAISSANCE. One semester. 3 h.

Special emphasis will be placed upon the artistic and literary side of the Renaissance.

Prerequisite: Course 1-2.

19. ENGLISH COLONIAL EXPANSION. One semester. 3 h.

Prerequisite: Course 1-2.

20. ADVANCED MODERN EUROPEAN HISTORY. One semester. 2 h. Not offered in 1916-1917.

A detailed study will be made of some limited phase of modern history, *e. g.*, the Near Eastern question or the history of France or Germany since 1870. The subject will be changed each year and the course may be elected more than once.

Prerequisite: Course 8.

21. STUDIES IN GERMAN CIVILIZATION. One semester. 2 h.

A consideration of the development of German institutions from the beginnings to the present time, with especial reference to the achievements of the German nation politically, socially, intellectually and industrially.

Prerequisite: Course 1-2.

22. THE DEVELOPMENT OF THE WEST. Throughout the year. 2 h.

A study of the western expansion of the United States with especial reference to the trans-Mississippi region.

Prerequisite: Course 11-12.

23. AMERICAN HISTORY SINCE 1880. One semester. 2 h.

Prerequisite: Course 11-12.

24. HISTORICAL METHODS AND BIBLIOGRAPHY. First semester. 2 h.

Required of all junior and senior students majoring in history.

25. METHODS OF TEACHING HISTORY. Second semester. 2 h. Required of all students who are preparing to teach history.

26. HISTORIOGRAPHY. First semester. 2 h. Required of all juniors and seniors majoring in history.

For courses for graduates only, see page 190.

LATIN

1. CICERO. First semester. 1:00. 5 h. For students who enter with two units of Latin.

Selected orations; Latin writing, drill in forms and syntax.

2. VIRGIL. Second semester. 1:00. 5 h. For students who enter with three units of Latin.

The Aeneid, Books I-VI; drill in reading the Latin hexameter, case and verb constructions, and poetic usages.

3. CICERO. First semester. 8:00. 3 h.

Cicero, *De Senectute* and *De Amicitia*; the relation of these works to Cicero's other writings; Latin grammar, prose composition.

4. OVID. First semester. 8:00. 2 h.

Selections from Ovid; the influence of Ovid on modern literature; introduction to classical mythology.

5. LIVY. Second semester. 8:00. 3 h.

Selections from the earlier books; Latin prose composition.

6. TERENCE AND PLAUTUS. First semester. 11:00. 2 h.

One play of each author; the place of Terence and Plautus in literature; introduction to Roman comedy.

7. HORACE. Second semester. 8:00. 2 h.

The Odes and Epodes; introduction to Latin lyrical poetry; Latin versification.

8. LATIN PROSE. First semester. 8:00. 2 h.

9. TACITUS. Second semester. 8:00. 2 h.

Tacitus, *Agricola* and *Germania*; the spread of Roman influence in the West.

10. LATIN PROSE AND SIGHT TRANSLATION. Second semester. 9:00. 3 h.

11. LATIN LITERATURE. Throughout the year. 2:00. 3 h.

The outlines of the literature with its historical setting. The course is based on Latin selections.

12. ROMAN HISTORY. First semester. 10:00. 3 h.

Lectures and reports on sources.

Outlines of Roman History; the history of Rome from its foundation to 476 A. D.

13. ROMAN SATIRE. First semester. 8:00. 3 h.

Horace, Juvenal, Persius; the origin and development of satire with a critical estimate of the historical value of the contents.

14. TACITUS AND PLINY. First semester. 8:00. 2 h.

Tacitus, Histories, book I; Pliny, Letters, book X; introduction to the prose of the Silver Latinity; Rome and the provinces.

15. ROMAN COMEDY. First semester. 1:00. 3 h.

Terence and Plautus, six plays; a comparative study of these authors, from the literary as well as the morphological side.

16. RHETORICAL TREATISES. 5 h.

Horace, *Ars Poetica*; Cicero, *De Oratore*, Brutus; Quintilian, book X; Tacitus, *Dialogus de Oratoribus*; principles of literary criticism; the debt of the above writers to Greek sources.

17. CATULLUS. First semester. 11:00. 2 h.

Latin lyrical poetry.

18. ROMAN PHILOSOPHY. 5 h.

Lucretius, *De Rerum Natura*; Cicero, *De Natura Deorum*, *De Finibus* and *Tusculanæ*; Seneca, selections; the place of Roman philosophy in the history of philosophy; the part played by these writers individually.

19. ROMAN HISTORY. 63 B. C. to 37 A. D. 3 h.

Sallust, *Catiline*; Cicero, *Letters* (Abbot's selections); Tacitus, *Annals*, books I-VI; Velleius Paterculus, book II.

20. TIBULLUS AND PROPERTIUS. 2 h.

Selected odes; special studies in Latin lyrical poetry.

21. MARTIAL AND PLINY. 2 h.

Selected epigrams and letters; private life under the early Roman Empire.

22. LATIN LITERATURE IN ENGLISH. 3 h.

The course is based on standard translations and is intended for students not taking Latin.

23. LIVY. 2 h. For advanced students.

Book I as a basis for the consideration of the problems of early Roman history.

24. SUTONIUS. 2 h.

Selected lives; introduction to the history of the Empire.

25. TEACHERS' TRAINING COURSE. Second semester. 3 h. For advanced students.

Lectures, reviews of textbooks; practical work in teaching under supervision.

26. ADVANCED LATIN PROSE. 2 h.

Stylistic analysis of Latin authors; the writing of Latin prose; problems in syntax.

27. GREEK AND ROMAN ARCHÆOLOGY. 2 h.

An elementary course in architecture, sculpture, and painting.

28. MINOR LATIN POETS.

Selections from various poets writing later than 69 A. D.

For courses for graduates only, see page 190.

LIBRARY SCIENCE AND PRACTICE

1. LIBRARY SCIENCE AND PRACTICE. Throughout the year. Th. 4:00, lectures; five hours each week, laboratory. 2 h.

Lectures by members of the library staff, and invited members of the profession. The course aims to give an adequate working knowledge of library usage. Visits to neighboring libraries, binderies, and publishing houses supplement lectures and laboratory instruction.

LITERATURE, COMPARATIVE AND ENGLISH

1. PRINCIPLES AND MASTERPIECES OF ART. Throughout the year. 1 h. Open to all.

Lectures illustrated by lantern slides.

The sources, effects, and methods of composition in poetry illustrated by reference to architecture, sculpture, and painting; the chief art works of every age.

2. INTRODUCTION TO THE NOVEL. Throughout the year. 2 h. Open to all.

3. THE BEST PROSE OF ALL AGES. Throughout the year. 2 h. Open to all.
4. PRESENT DAY POETS. 2 h. Open to all.
5. THE ANALYSIS OF PLAY CONSTRUCTION. Throughout the year. 2 h. One lecture hour; one hour for conferences on writing plays.
6. AMERICAN AUTHORS. Throughout the year. Open to freshmen and sophomores.
7. THE HISTORY OF ENGLISH LITERATURE. Two or more divisions. Throughout the year. 5 h. Not open to freshmen. Recitations and lectures.

From Anglo-Saxon times to the twentieth century; the chief types of prose and poetry; the principles of literary analysis and criticism; wide reading in English authors. This is the foundation course for those electing literature as a major. An effort is made to secure good habits of reading and writing.

History of English Literature; Readings in English Literature.

8. THE GREAT DRAMA. Throughout the year. 5 h. For graduates and advanced undergraduates.

The international aspects of the English drama; a reading course from the mystery plays to the twentieth century.

9. AMERICAN PLAYS. 2 h.
10. SHAKESPEARE. Throughout the year. 5 h. Open to graduates and advanced undergraduates.

All the plays attributed to Shakespeare are read during the year; studies in the style, diction, and versification of the different periods; the establishment of the text; interpretation of great dramatic types—history, comedy, tragedy; wide reading and some original research.

11. WORLD DRAMA. Throughout the year. 5 h. For graduates and advanced undergraduates.

The development of the drama from the earliest times to the present; primitive drama; the literary drama of China, Japan, and India; the ancient classical drama; Calderon;

Corneille, Racine, Molière, Victor Hugo; Lessing, Schiller, Goethe; Ibsen; Tolstoy; Echegaray; Rostand, Maeterlinck; D'Annunzio; Hauptmann, Sudermann. This is a reading course, including one hundred and twenty-seven plays (in English).

12. THE GREAT EPICS. Throughout the year. 5 h. For graduates and advanced undergraduates.

The Iliad, the Odyssey, and the Æneid; the Divine Comedy; the great epics of all ages (in English).

13. MASTERPIECES OF PROSE FICTION FROM THE EARLIEST TIMES. Throughout the year. 5 h. Open to graduates and advanced undergraduates.

Typical masterpieces from the Greek romances to the twentieth century novel.

14. THE SHORT STORY.

Studies analytical, historical, and constructive.

15. TENNYSON. Throughout the year. Tu. Th. 2 h. For advanced students.

16. BROWNING. Second semester. 1 h. For advanced students.

The Globe edition of Tennyson; the Cambridge edition of Browning. The Seminary Library contains many volumes of valuable Tennysonianiana presented by members of the class of 1896, and publications of the Browning Society.

17. SHELLEY. Second semester. 2 h.

18. THE LATER NINETEENTH CENTURY POETS. 2 h. Open to seniors and juniors.

Extensive readings in Clough, Arnold, Rossetti, Morris, Stevenson, Swinburne, Meredith, Patmore, and Wilde.

NOTE—Courses 14, 15, and 16 in the Department of Greek and 22 in the Department of Latin count towards a major in English Literature.

Freshman composition does not count as a minor for English Literature major.

For courses in English Language, see page 74.

For courses for graduates only, see page 192.

MATHEMATICS

1. COLLEGE ALGEBRA. First semester. 9:00. 5 h. Only three hours allowed to those offering $1\frac{1}{2}$ units of high-school algebra for entrance.

Presupposes 1 unit of high-school algebra.

2. COLLEGE TRIGONOMETRY. Second semester. 9:00. 5 h. Only three hours allowed to those offering $\frac{1}{2}$ unit of high-school trigonometry for entrance.

3. COLLEGE ALGEBRA. First semester. 9:00. Second semester. 10:00. 3 h.

This course is generally taken with Course 4.

Presupposes $1\frac{1}{2}$ units of high-school algebra.

4. PLANE TRIGONOMETRY. First semester. 9:00. Second semester. 10:00. 2 h. No credit allowed if taken in review of high-school trigonometry.

5. COLLEGIATE MATHEMATICS. Throughout the year. 5 h.

Presupposes 3 entrance units; preferably, algebra $1\frac{1}{2}$ units and geometry $1\frac{1}{2}$ units.

This is a general course in trigonometry, analytic geometry, and the calculus. It is offered for students who, though not specializing in mathematics, find a real need for some acquaintance with its processes and formulas before they can read satisfactorily important texts and monographs in their major subjects, as in geology, economics, logic.

6. MODERN GEOMETRY. First semester. 8:00. 5 h.

Elementary.

Presupposes 1 unit of high-school geometry.

7. SEQUEL TO EUCLID. Second semester. 8:00. 2 h. No credit allowed to those who have had Course 6.

Presupposes 1 unit of high-school geometry.

8. ELEMENTARY SOLID GEOMETRY. Second semester. 8:00. 3 h.

9. THEORY OF EQUATIONS. First semester. 10:00. 3 h.

Elementary. Sequence to Course 1 or 3.

10. ANALYTIC GEOMETRY. First semester. 8:00. Second semester. 9:00. 5 h.

Presupposes $1\frac{1}{2}$ units of high-school algebra, and $\frac{1}{2}$ unit of high-school trigonometry, or Course 2 or 4.

11. CALCULUS I. Either semester. 8:00. 5 h.

Prerequisite: Course 10.

12. CALCULUS II. First semester. 9:00. Second semester. 8:00. 5 h.

Prerequisite: Course 11.

13. DIFFERENTIAL EQUATIONS. Second semester. 9:00. 5 h.

14. MATHEMATICAL THEORY OF INVESTMENT. First semester. 10:00. 2 h.

15. MODERN ACCOUNTING. Second semester. 3:00. 3 h.

After reviewing the essentials in theory and practice of debits and credits, takes up the broader principles and applications of modern accounting. Introductory to life insurance and theory of investments.

16. FUNDAMENTAL CONCEPTS IN MATHEMATICS. Second semester. 11:00. 3 h.

17. ANALYTIC SOLID GEOMETRY. Second semester. 10:00. 5 h.

18. COMPLEX FUNCTIONS. Second semester. 10:00. 5 h.

19. TEACHING OF MATHEMATICS. First semester. 10:00. 3 h.

20. HISTORY OF MATHEMATICS. Second semester. 11:00. 3 h.

21. PROJECTIVE GEOMETRY. First semester. 10:00. 5 h.

22. TRANSCENDENTAL FUNCTIONS. Second semester. 5 h.

23. COURSES IN CONTINUATION OF COURSES 11, 13, AND 18. First semester. Hours and credits as arranged.

24. COURSES IN CONTINUATION OF COURSES 9, 10, AND 12. Second semester. Hours and credits as arranged.

For courses for graduates only, see page 192.

MUSIC

1. HARMONY. Throughout the year. M. W. F. 11:00. 3 h.
Textbook: Bussler.
2. COURSE 1 CONTINUED. Throughout the year. Tu. Th. 10:00. 2 h.
Textbook: Bussler.
Prerequisite: Course 1.
3. COUNTERPOINT. Throughout the year. Tu. Th. 9:00. 2 h.
Prerequisite: courses 1 and 2.
4. CANON AND FUGUE. Throughout the year. 2 h.
Prerequisite: courses 1, 2, and 3.
5. COMPOSITION AND ORCHESTRATION. Throughout the year. 2 h.
Prerequisite: courses 1, 2, and 3.
6. HISTORY OF MUSIC. Throughout the year. Tu. 3:00. 1 h. Open to all.
Lectures.
7. AESTHETICS AND PHILOSOPHY OF MUSIC. Either semester. W. 7:30. 1 h. Open only to graduate students and seniors.
Seminar.

PHILOSOPHY

1. HISTORY OF PHILOSOPHY. Both semesters. M. W. F. 9:00. 3 h.
Open to all.
2. INTRODUCTION TO PHILOSOPHY. Both semesters. M. W. F. 11:00. 3 h. Open to all.
3. HISTORY AND PHILOSOPHY OF EDUCATION. Both semesters. M. W. F. 10:00. 3 h. Open to all.
Does not count as credit in Philosophy until 5 hours in Course 1 or 2 have been taken.
4. METAPHYSICS. Hours to be arranged. 2 h. For advanced students.
5. HISTORY OF SCIENCE. Both semesters. W. 7:00-9:00 p. m.
6. LOGIC. First semester. Tu. Th. 10:00. 2 h. Open to all.
7. AESTHETICS. Both semesters. Tu. Th. 9:00. 2 h. Open to all.
8. ETHICS. Second semester. Tu. Th. 10:00. 2 h. Open to all.

PHYSICAL EDUCATION

One year's work in Physical Education is required of freshmen in the College of Liberal Arts. Beyond this no academic credit is given for any of the courses in Physical Training except the Teachers' Course.

COURSES FOR MEN

1. **ELEMENTARY GYMNASTICS.** First semester. M. W. F. 1 h. Open to all.

Calisthenics; light apparatus work; marching and drills; indoor and outdoor games—soccer, volley-ball, basketball, indoor baseball, and various gymnastic games.

2. **INTERMEDIATE GYMNASTICS.** Second semester. 1 h. A continuation of Course 1. Open to all.

Calisthenics; light and heavy apparatus work; indoor and outdoor games—soccer, volley-ball, basketball, baseball, track work, tennis, and cross-country running.

3. **ADVANCED GYMNASTICS.** Both semesters. Tu. Th. Open to students who are physically competent.

Heavy apparatus work, advanced calisthenics, gymnastic games, contests of skill and strength, boxing and wrestling.

4. **TEACHERS' COURSE.** Both semesters. 1 h.

A study of the major branches of sports: football, basketball, baseball, track and field athletics, each in season. Lectures on the game, offense, defense, the rules, the several positions, daily programs of practice, methods of coaching. The class instruction is paralleled by practical work.

5. **ATHLETICS.** First semester. Elective for students who are physically competent.

Football, basketball, soccer, and tennis.

6. **ATHLETICS.** Second semester. Elective for students who are physically competent.

Baseball, soccer, tennis, track and field work.

COURSES FOR WOMEN

1. **FRESHMEN COURSE.*** Throughout the year. Three hours a week.
1 h. Required of freshmen.

a. Archery, basketball, captain-ball, volley-ball, baseball, Out of doors. September to November.

b. Elementary Swedish gymnastics—marching, floor work, apparatus work; folk dancing; aesthetic dancing; organized games. In gymnasium. November to Spring Recess.

c. Archery, captain-ball, tennis, volley-ball, baseball. Out of doors. Spring Recess to last of May.

In a and c one sport only is required. Students may choose from the group offered.

2. **ADVANCED COURSE.** Throughout the year. Three hours a week.
No credit. Open to upperclassmen. Elective.

a. Archery, baseball. Out of doors. September to November.

b. (1) Advanced Swedish gymnastics—marching, floor work, apparatus work; folk and aesthetic dancing; organized games.

(2) Class basketball. Two hours a week.
In gymnasium. November to Spring Recess.

c. Archery, tennis, baseball. Out of doors. Spring Recess to last of May.

Prerequisite: Course 1 or its equivalent.

3. **RESTRICTED COURSE.** Throughout the year. Three hours a week.
Open to all.

a. Archery, captain-ball, volley-ball. Out of doors. September to November.

b. Restricted Swedish gymnastics—marching and floor work; folk and aesthetic dancing; organized games. In the gymnasium. November to Spring Recess.

c. Archery, tennis, captain-ball, volley-ball. Out of doors. Spring Recess to last of May.

This course is for students whose condition of health is such that they may not take either of the above courses.

* The restricted course may be substituted for this course in cases where conditions of health make such substitutions advisable. This is possible only by permission of the director of the department.

PHYSICS

1. GENERAL PHYSICS—MECHANICS AND HEAT.* First semester. Tu. Th. 10:00. Lectures, two hours; recitations, two hours. 4 h.

Prerequisite: an elementary knowledge of plane trigonometry.

2. GENERAL PHYSICS—ELECTRICITY, MAGNETISM, SOUND AND LIGHT*. Second semester. Tu. Th. 10:00. Lectures, two hours; recitations, two hours. 4 h.

Prerequisite: an elementary knowledge of plane trigonometry.

3. EXPERIMENTAL PHYSICS.† First semester. One three-hour period per week. 1 h.

Quantitative laboratory work in the subjects of mechanics and heat.

Prerequisite: an elementary knowledge of plane trigonometry.

4. EXPERIMENTAL PHYSICS.† Second semester. One three-hour period per week. 1 h.

Quantitative laboratory work in the subjects of electricity, magnetism, sound, and light.

Prerequisite: an elementary knowledge of plane trigonometry.

5. THEORETICAL MECHANICS—STATICS. Second semester. M. F. 11:00. 2 h. Taken regularly in the sophomore year.

A study of the equilibrium of particles and rigid bodies; centers of mass; moments of inertia.

* Courses 1 and 2 are an elementary but thorough presentation of the fundamental facts, principles, theories, and applications of modern physics, covering the properties and mechanics of solids, liquids, and gases, and the phenomena of heat, electricity, magnetism, sound, and light. These courses, or their equivalent, are prerequisite for all those that follow. The lectures are fully illustrated by apparatus and by experiments. The recitations are based upon both the lectures and a textbook which the student is expected to study systematically in parallel with the lectures.

† It is strongly recommended that courses 3 and 4 be taken in parallel with courses 1 and 2. When not so taken, courses 1 and 2, or their equivalents, must precede. All the above courses are taken regularly in the sophomore year but they may be taken by freshmen with the requisite preparation. They should be taken as soon as possible by those whose major subject is physics, chemistry, or mathematics.

Prerequisite: Course 1 and calculus; open, however, to those who are beginning integral calculus the second semester.

6. THEORETICAL MECHANICS—DYNAMICS. First semester. M. W. F. 8:00. 3 h. Taken regularly in the junior year.

A study of the motion of particles and rigid bodies. Emphasis is laid upon the fundamental physical principles of the subject and the attempt is made to give the student a certain facility in translating physical conceptions into mathematical symbols and mathematical formulæ into physical ideas.

Prerequisite: Course 1 and calculus.

7. TEACHERS' TRAINING COURSE IN PHYSICS. Second semester. 2 h. Omitted in 1916-1917.

A course designed primarily for those who expect to teach physics in secondary schools. Such topics as the proper arrangement of a secondary-school course, laboratory equipment and instruction, aims, ways and means of teaching the various subjects, things which do and which do not need emphasis, will be considered in lectures, discussions, and reports. Considerable outside reading will be required.

Prerequisite: courses 1, 2, 3, and 4, or their equivalent.

8. THEORY OF ELECTRICITY AND MAGNETISM. First semester. M. W. Th. F. 10:00. 4 h. Taken regularly in the junior year.

The elements of the mathematical theory of electricity and magnetism with applications to the general theory of instruments of fundamental importance in electrical measurements.

Prerequisite: courses 2, 5 and 6, or their equivalent, and differential and integral calculus; open, however, to those who are taking Course 6.

9. ELECTRICAL MEASUREMENTS. First semester. Two three-hour periods per week. 2 h. Taken regularly in the junior year.

A laboratory course intended to accompany and to supplement Course 8.

Prerequisite: courses 2 and 4, or their equivalent.

10. THEORY OF ELECTRICITY—ALTERNATING CURRENTS. Second semester. 2 or 3 h.

A study of alternating current theory, problems and applications. Courses 8 and 10 are designed to furnish a thorough knowledge of fundamental principles and conceptions and a preparation for the further study of advanced electrodynamics.

Prerequisite: Course 8, differential and integral calculus.

11. PROPERTIES OF MATTER. Second semester. Hours and credits to be arranged. Omitted in 1916-1917.

Lectures on molecular physics and properties of matter with advanced laboratory work on selected problems of considerable experimental difficulty.

Prerequisite: courses 1 to 6 inclusive, calculus.

12. HEAT AND THERMODYNAMICS. First semester. Lectures and recitations. 2 h. Omitted in 1916-1917.

A study of the more important phenomena of heat and elementary thermodynamics.

Prerequisite: courses 1, 2, and calculus.

13. LIGHT. First semester. Lectures, 1 hour; laboratory, 4 hours. 3 h.

A course designed to give the student a critical knowledge of the fundamental phenomena of light. The laboratory work consists of accurate measurements in dispersion, interference, diffraction and polarization.

Prerequisite: courses 1 to 4 inclusive, and calculus.

14. ADVANCED ELECTRICAL MEASUREMENTS. Second semester. Hours and credit to be arranged.

Laboratory work on selected electrical problems of considerable difficulty, requiring a rather advanced knowledge of the theory of electricity and magnetism.

Prerequisite: courses 8, 9, and calculus.

20. DESCRIPTIVE ASTRONOMY. First semester. Tu. Th. 8:00. 2 h.

A course conducted by means of lectures, recitations and a text. It is designed as a complete course for those wishing a general knowledge of the principal facts, theories and methods

of astronomy and provides a necessary introduction to Course 21. The lectures are illustrated by slides, models, and apparatus. The telescope will be used occasionally.

Prerequisite: an elementary knowledge of trigonometry.

21. INTRODUCTION TO MATHEMATICAL ASTRONOMY. Second semester.
3 h. Omitted in 1916-1917.

A course dealing with selected portions of spherical, practical, and theoretical astronomy involving mathematical treatment of elementary and intermediate difficulty.

Prerequisite: courses 6, 20, and calculus; differential equations advised.

For courses for graduates only, see page 194.

PSYCHOLOGY

1. GENERAL PSYCHOLOGY. (Education 1.) Two sections. First semester. M. W. F. 1:00, 2:00, with an additional hour to be arranged for recitations and conferences. 3 h.

This course gives, by means of lectures, recitations, experiments, and demonstrations, a general survey of the essential facts and fundamental laws of mind. It is prerequisite to all other courses in psychology and to the courses in education. The student who expects to make psychology or education a major should take this course in his sophomore year.

2. COMPARATIVE PSYCHOLOGY. (Education 2.) Second semester.
M. W. F. 2:00. 3 h. Continuation of Course 1.

A systematic study of mental development in the race and in the individual. The course will sketch the development of the nervous impulse, of animal sense organs with reference to their habits, of instincts and intelligence in animals, and in cases of arrested development. With these simpler facts as a basis the development of mental functions in the individual in childhood and adolescence will be discussed with reference to educational theory.

3. ADVANCED PSYCHOLOGY. First semester. Tu. Th. 9:00. 2 h.

Lectures, discussions, readings, and a thesis.

An intensive study of selected problems; introspective exercises and an analytic study of mental phenomena.

Prerequisite: Course 1 or its equivalent.

4. **PATHOLOGICAL PSYCHOLOGY.** Second semester. Tu. Th. 9:00. 2 h. Open on consultation.

Lectures, readings, and a thesis.

Disorders of sensation, memory, imagination, association, the emotions and volition. As Course 2 traces the development of mental functions this course will discuss the order of their impairment. Mental hygiene and a study of such psychoses as throw light on the general and genetic problems of psychology.

Prerequisite: two courses in psychology.

- 5-6. **EXPERIMENTAL PSYCHOLOGY.** Throughout the year. Tu. Th. 1:00-3:00, laboratory; 3:00, lecture. 3 h.

This course serves as an introduction to experimental psychology and aims to familiarize the student with modern psychological methods, apparatus, and results.

First semester. Typical experiments and demonstrations in the psychology of the senses, feeling and movement, with a study of individual differences.

Second semester. Experiments in perception and the higher mental processes; time, intensity, and extensity of mental phenomena; mental and physical tests and measurements; statistical methods.

7. **EDUCATIONAL PSYCHOLOGY.** (Education 2.) Second semester. M. W. F. 1:00. 3 h. Continuation of Course 1.

Lectures, readings, and a thesis.

The principles of psychology, and the results of experimental pedagogy which are modifying the course of study and methods of instruction in the older schools of this country will be presented in this course. It is recommended that those students who are primarily interested in education take this course as a continuation of Course 1.

Prerequisite: Course 1, or its equivalent.

8. **THE PSYCHOLOGY OF GRAMMAR-SCHOOL AND HIGH-SCHOOL SUBJECTS.** Second semester. Tu. Th. 10:00. 2 h. Not offered in 1916-1917.

Lectures, recitations and a thesis.

This course describes the mental functions involved in the mastery of each school subject of grammar-school and high-school grade. The topics will be discussed from the point of view of classroom practice, then from that of experimental inquiry, and finally from the point of view of the causes of failure in different subjects. The purpose of the course is to apply the principles of psychology directly to teaching.

9. THE PSYCHOLOGY OF ADVERTISING. First semester. Th. 11:00.
1 h. Not offered in 1916-1917.

Laboratory exercises and recitations.

The strength of advertisements of various classes will be tested by a rather accurate statistical method. The same method will be applied to advertisements written by students. Size, position, medium, headlines, legibility and various other problems of advertising will be studied.

10. MENTAL TESTS. First semester. Th. 11:00. 1 h.
Lectures, exercises, and readings.

The more important and practical tests of the senses and intelligence will be presented and discussed. Such physical tests will be selected for discussion as are of especial importance to teachers.

11. SOCIAL PSYCHOLOGY. (Education 12.) First semester. Tu. Th.
9:00. 2 h.

A study of personality as socially modified or determined: the effects of—imitation; habit; habit and attention; social and personal crises; language; instincts, emotions, sentimentalisms, sentiments, and ideas; occupations and institutions.

This course does not count for required Psychology.

Prerequisite: courses 1 and 2, or their equivalents.

12. CHILD STUDY. First semester. 2 h.

A systematic study of the physical and mental development of children; a discussion of the facts, scientifically determined, of the psychology of childhood and adolescence, with their educational applications.

Prerequisite: Course 7, or its equivalent.

13. ANATOMY OF THE CENTRAL NERVOUS SYSTEM.

See announcement of School of Medicine.

For courses for graduates only, see page 196.

ROMANCE LANGUAGES

FRENCH

- 1-2. BEGINNERS' COURSE. Throughout the year. 8:00, 10:00, 11:00.
5 h.

Grammar, pronunciation, translation, dictation.

- 3-4. SECOND-YEAR COURSE. Throughout the year. M. W. F. 9:00.
3 h.

Modern French stories and plays to be selected from standard authors of the nineteenth century; selected lyrics.

Prerequisite: Course 1-2, or two years of high-school French; students are advised to take Course 3a-4a with Course 3-4.

- 3a-4a. PROSE COMPOSITION AND CONVERSATION. Throughout the year.
Tu. Th. 9:00. 2 h.

Completion of French grammar; phonetics.

Prerequisite: Course 1-2, or two years of high-school French; students are recommended to take Course 3-4 with Course 3a-4a.

5. THIRD-YEAR COURSE. First semester. M. W. F. 10:00. 3 h.

The Seventeenth Century; Corneille, Racine, Molière, Mme. de la Fayette; advanced prose composition.

Prerequisite: courses 3-4 and 3a-4a.

6. THIRD-YEAR COURSE. Second semester. M. W. F. 10:00. 3 h.

The Romantic School; the drama of Victor Hugo; modern poetic drama of Rostand; advanced prose composition.

7. HISTORY OF FRENCH LITERATURE. First semester. M. W. F.
11:00. 3 h.

Lectures and reports on assigned readings from the beginnings to the reign of Francis I.

8. HISTORY OF FRENCH LITERATURE. Second semester. M. W. F.
11:00. 3 h.

Lectures and reports on assigned readings from the reign of Francis I to the present time.

9. FRENCH LYRIC POETRY. Second semester. 2 h.
10. FRENCH SHORT STORIES. First semester. 2 h.
With study of the novel.
11. FRENCH DRAMA. Second semester. 2 h.
From the beginnings to the present day.
12. FRENCH LITERARY CRITICISM. Second semester. 2 h.
French literature from the point of view of Sainte Beuve, Scherer, Taine, Faguet, Anatole France, etc.
13. SYNTAX OF THE FRENCH VERB. Second semester. 2 h.
Based on Armstrong's Syntax of the French Verb, with assigned readings.
For courses for graduates only, see page 196.

SPANISH

- 1-2. BEGINNERS' COURSE. Throughout the year. 10:00. 5 h.
Grammar, pronunciation, translation, dictation.
- 3-4. SECOND-YEAR COURSE. Throughout the year. M. W. F. 9:00.
3 h.
Modern Spanish stories and plays to be selected from standard authors of the nineteenth century; prose composition.
Prerequisite: Course 1-2, or two years of high-school Spanish.
5. THIRD-YEAR COURSE. First semester. M. W. F. 10:00. 3 h.
Spanish prose masterpieces, lyric poetry, modern drama, prose composition.
6. THIRD-YEAR COURSE. Second semester. M. W. F. 10:00. 3 h.
Cervantes, Lope de Vega, and Calderon; prose composition.
For courses for graduates only, see page 196.

ITALIAN

- 1-2. BEGINNERS' COURSE. Throughout the year. 1:00. 3 h.
Grammar, pronunciation, translation, dictation.
3. DANTE'S DIVINE COMEDY. First semester. 2 h.
4. ALFIERI AND GOLDONI. Second semester. 2 h.

For courses for graduates only, see page 197.

NOTE—Students are recommended to take up the Romance Languages in the following order: French, Spanish, Italian. They should not elect courses simultaneously in Spanish and Italian without consulting the instructor.

ELECTIVES IN THE PROFESSIONAL SCHOOLS

In accordance with the general plan outlined on page 55, the courses tabulated below may be elected in the professional schools.

COLLEGE OF ENGINEERING

The following subjects in the College of Engineering may be taken by all students in the College of Liberal Arts:

Mechanical Drawing, 3; Freehand Drawing, 2; Descriptive Geometry, 3; Surveying, 8; Geodesy and Least Squares, 2; Technical Mechanics, 5; Engineering Materials, 1; Applied Mechanics, 4; Graphic Statics, 3; Kinematics, 2; Hydraulics, 3; Thermodynamics, 4; Dynamo Electric Machinery, 4; Bacteriology, 2.

SCHOOL OF LAW

Students in the College of Liberal Arts in their fourth year who declare their intention of proceeding to the degree LL.B. in the University of Colorado, may be allowed credit for twenty-two hours on the completion of all work required in the freshman year of the School of Law.

SCHOOL OF MEDICINE

The two degrees of M.D. and A.B. may be conferred on the completion of seven years' work, one year's credit (30 hours) being allowed on the completion of the full freshman work in the School of Medicine.

Under this arrangement a student would naturally choose either zoology or chemistry as a group major.

COLLEGE OF COMMERCE

FACULTY

FREDERICK A. BUSHEE, Ph.D.,
Director of the College of Commerce.

The Faculty of the College of Commerce consists of Professors
and Instructors whose work contributes to the courses.

GENERAL STATEMENT

FUNCTION

The College of Commerce was opened September, 1906. Its purpose is to provide professional training for the practical demands of business. It aims to prepare men for careers in Domestic and Foreign Commerce and Banking, Insurance, Transportation, Trade and Industry, Journalism, and in branches of the Public Service, like the Consular, in which a knowledge of business is essential. Heretofore universities and colleges have done all they could for the young man who wishes to become a minister, teacher, lawyer, physician, journalist or engineer. The College of Commerce is developed in response to the demands of (1) enlarged commercial operations, (2) the public service, (3) the desire of parents to give their sons a college education and at the same time prepare them for their life work in business.

It is well known that the knowledge of the details of any particular line of business can be acquired only by actual experience. But the broad training given students in this department of the University will enable them to acquire the routine technicalities of any concern more easily than those whose minds have not been made flexible and acute by systematic training. They will thus the more readily assume positions of leadership and responsibility in the business world.

The curriculum of the College of Commerce is prepared with the following aims in view: (1) To furnish a certain amount of culture work which is the mark of college training. (2) To familiarize the student with the nature and workings of the industrial organism. This is attempted by studies in commercial geography, economics and history of commerce, transportation, banking, business organization and management. (3) To impart a certain amount of knowledge of the physical and chemical sciences and their applications to the industrial arts. (4) To give an acquaintance with the articles of commerce and the various industrial processes through which they pass. (5) To make the student acquainted with the principles of commercial law. (6) To supply an equipment in modern languages. (7) To afford an opportunity to acquire some knowledge of a particular line of trade.

The work of the College of Commerce is on the same high plane as that of the other undergraduate departments of the University. The entrance requirements are the same and an equal number of hours' work is required for the Bachelor's degree.

ORGANIZATION

The College of Commerce offers four courses: 1. Banking. 2. Manufactures. 3. Journalism. 4. Trade, Transportation and Consular Service.

ADMISSION AND FEES

The requirements for admission and the fees are the same as for the College of Liberal Arts. See pages 27, 28, 34.

SUBJECTS IN THE COLLEGE OF COMMERCE*

(REQUIRED FOR GRADUATION.)

FRESHMAN YEAR

	I.	II.	III.	IV.
	Banking	Mfrs.	Jour.	Trade, Consular Service, etc.
ENGLISH LANGUAGE..	6	6	6	6
SCIENCE	10	Chem. { 10	10	10
HISTORY	6	6	6	6
FRENCH, GERMAN OR SPANISH	10	10	French { 10	10
REQUIRED PHYSICAL TRAINING	2	2	2	2
	34	34	34	34

SOPHOMORE YEAR

MATH., SCIENCE.....	Math. { 10	Math. { 10	Biol. { 4	Ec. Bot. { 3
PSYCHOLOGY .....	..	..	6	6
HISTORY OR ECON....	10	10	10	10
FREE ELECTIVES	10	10	10	11
	30	30	30	30

* In addition to regular courses in the departments open to election, provision will be made for lectures on current problems, and practical topics by prominent business men.

JUNIOR AND SENIOR YEARS

LAW	10	10	10	10
ECONOMICS	20	20	20	20
ENGLISH LANGUAGE AND LITERATURE OR CLASSICS .....	..	..	20	..
PHYSICS .....	..	10	..	..
FREE ELECTIVES	28	18	8	28
	58	58	58	58

The following courses are especially recommended for students in the College of Commerce:

Principles of Advertising.

Business Organization and Scientific Management.

History of Commerce.

Commercial Geography.

Economic History of the United States.

Taxation.

Transportation.

Corporations.

Money and Banking.

Journalism.

Diplomatic and Consular Service.

Theory and Practice of Accounting.

Life Insurance.

Mathematical Theory of Investments.

For a further description of these courses, see departments of Mathematics and Economics and Sociology in the College of Liberal Arts.

COLLEGE OF EDUCATION

FACULTY

FRANK E. THOMPSON, A.B.,
Director of the College of Education.

The Faculty of the College of Education consists of Professors and Instructors in the College of Liberal Arts whose work contributes to the various courses.

GENERAL STATEMENT

ORGANIZATION

A College of Education, to be a division of the College of Liberal Arts, was authorized by the Board of Regents in January, 1908. The report of the committee on a course of study was adopted in April, and the College was regularly opened for work in September of that year.

FUNCTION

It is intended that this College shall provide systematic and comprehensive training for those who may choose education as a *profession*. That there may be such a profession becomes every year more apparent, and it becomes apparent, too, that preparation for service in it must be as complete as for service in other professions. No human endeavor is more important than education; no class should be more carefully prepared than teachers. The need of the present time, expressed in most quarters in a demand, is that many of the teachers in the elementary schools, all of the teachers in the high schools, and all persons engaged in supervision of instruction shall have as a minimum of scholarship the A.B. degree, or its equivalent, and shall have made intensive study of the history, theory and practice of education. There is need in each state for at least one professional school of collegiate rank which shall afford opportunity for training, both in theory and practice, for teaching, supervisory and administrative positions in elementary, secondary and normal schools.

The College of Education is designed to satisfy this need; it is a device of organization and administration to secure for the teacher studies along pertinent lines and in right proportions and sequence. The student looking toward teaching as a profession is assisted and directed in the choice and prosecution of his work from the time of his matriculation until his graduation. He does not sacrifice anything of the culture of the Liberal Arts course.

DESIGN OF CURRICULUM

The curriculum is designed to furnish to the prospective teacher who would be thoroughly equipped for his work:

1. Courses calculated to give sound scholarship and that culture rightly expected of the college graduate.

2. Courses in the subjects he expects to teach, of such character and so organized in sequence that when graduated he will be in some measure an authority in these subjects.

3. Courses that will give knowledge of:

a. The constitution and needs of society.

b. Child and adult natures and their possibilities for modification.

c. The educational values of the various school subjects.

d. The art of instruction—this knowledge to be both general and concrete and to come in large measure from actual practice in teaching.

e. Educational history and its significance, both for the present and the future.

ADMISSION, FEES, AND ADVANCED STANDING

See pages 27, 28, 34.

COURSES OF STUDY LEADING TO THE DEGREE BACHELOR OF ARTS AND A BACHELOR'S DIPLOMA IN EDUCATION

The course of study of the College of Education covers a period of four years, 122 hours of credit being required for graduation. Graduates receive the degree of Bachelor of Arts and a Bachelor's Diploma in Education, which latter certifies that the holder has specialized in the theory and art of education.

The general regulations of the College of Liberal Arts apply in the College of Education.

The course of study is distributed as follows:

English Language.....	6 hours
Classics and Mathematics, Mathematics and Science, or Science and Classics.....	15 hours
History or Economics.....	6 hours
Psychology (General and Educational).....	6 hours
History and Philosophy of Education.....	6 hours
Principles of Education.....	3 hours

Principles of Instruction.....	3 hours
Principles and Practice of Teaching.....	6 hours
Philosophy or Sociology or additional Education or Psychology	6 hours
Group Electives, Major and Minors (subjects the student expects to teach).....	50 hours

PREFERRED SCHEDULE

FRESHMAN YEAR

1. ENGLISH LANGUAGE	6
2. CLASSICS, MATHEMATICS OR SCIENCE.....	10
3. HISTORY OR ECONOMICS.....	6
4. GROUP OR FREE ELECTIVES.....	8
5. REQUIRED PHYSICAL TRAINING.....	2
	<hr/>
	32

SOPHOMORE YEAR

6. CLASSICS, MATHEMATICS OR SCIENCE.....	5
7. a. PSYCHOLOGY	6
b. HISTORY OF EDUCATION	6
8-9. GROUP OR FREE ELECTIVES.....	13
	<hr/>
	30

JUNIOR YEAR

PRINCIPLES OF EDUCATION AND INSTRUCTION.....	6
ELECTIVES (in Education group).....	3-6
10. GROUP ELECTIVES (subjects student intends to teach)	20-15
11. FREE ELECTIVES	6-3
	<hr/>
	30

SENIOR YEAR

PRINCIPLES AND PRACTICE OF TEACHING.....	6
ELECTIVES (in Education group).....	0-3
12. GROUP ELECTIVES (subjects student intends to teach)	20-15
13. FREE ELECTIVES	9-6
	<hr/>
	30

GROUPS OF MAJORS AND MINORS

The purpose of the group elective requirement is to secure on the part of the teacher a thorough and systematic knowledge of the subject or subjects he proposes to teach. Usually the teacher in the secondary school is required to teach two or more subjects. Hence it is desirable that he should have a careful and extensive preparation in one subject and sufficient preparation for teaching at least the elementary steps of two or three additional subjects.

The groups of majors and minors are uniform with those of the College of Liberal Arts. See page 58.

PRACTICE TEACHING

With the cooperation of the Board of Education of Boulder there have been worked out two very satisfactory schemes for practice teaching.

1. Certain classes in the high school (and sometimes in the elementary schools) are divided by the principal into sections, and one section of each such division is given into the charge of a student teacher who is under the immediate supervision of the regular class teacher, the school principal, and some one from the College of Education, and under the general supervision of the head of that institution. Each such section is a problem, and a set of problems, to be solved by the persons mentioned working together. The student teacher observes the work of the regular class (in which his section frequently recites), sees what the ideal for the day's lesson is and, when he meets his section, does what he can to attain that ideal. In this attempt he is helped by the supervisors and makes rapid progress toward efficiency. The section of the class taken by the student teacher is the smaller section and is composed of those who have had difficulty in getting on—of those who, except for this arrangement, would be likely to fail of passing. Each student in such a section is to some extent a subject for special study and treatment, hence the novice teacher's attention is forced at once where it properly should be: upon the problem of how children learn rather than upon how teachers teach.

2. There is a school known as the Boulder Training School in an independent building in which instruction covering the regular course of study of the Boulder schools is offered for all grades

from the kindergarten to the last year of the elementary school, inclusive. Practically, it is an ungraded school; a great deal of attention is given each pupil; he has every opportunity for making the most of his capability—of making progress at the speed best suited to him; the naturally "bright" pupil is able to make more than one grade in a year, the "average" pupil proceeds at his gait, and the "slow" pupil goes as rapidly as he can. All pupils are carefully studied and tested with a view to improving mental health and learning ability.

COMMITTEE ON THE RECOMMENDATION OF TEACHERS

The Committee on the Recommendation of Teachers will make every effort to place students and graduates of the University in the positions for which their general education and professional preparation have fitted them. This committee maintains communication with Superintendents and Boards of Education with reference to vacancies, and invites correspondence from school authorities who are in need of professionally trained teachers. Students of the University, who intend to teach, and graduates of the University, who are now engaged in teaching and who wish to secure better positions, should register with the secretary of the committee.

STATE DIPLOMAS

The 17th General Assembly enacted House Bill No. 423, in which Sections 4 and 7 provide as follows:

Sec. 4. The State Board of Education shall issue State diplomas upon application, without examination, to applicants who shall be graduates of colleges situated within the State of Colorado, which maintain a standard four-year course of collegiate work and require four standard years of high-school work or its equivalent for admission, and who shall also exhibit evidence satisfactory to the State Board of Education of good moral character, and who shall also present evidence to the State Board of Education that they have twenty-four months of successful teaching experience, and who shall also produce evidence satisfactory to the State Board of Education, of professional training equivalent to at least one-sixth of a standard four-years' college course in at least three of the following groups of subjects, one of which shall be Practice Teaching, to-wit:

- (1) General and Educational Psychology.
- (2) History of Education.
- (3) Science and Principles of Education.
- (4) Practice Teaching and Special Methods.
- (5) Organization and Management of Schools.
- (6) Philosophy, Sociology and Anthropology.

Sec. 7. State diplomas, granted under the provisions of this act, shall license the holders thereof to teach in the public schools of any county, city, town, or district in the State without the necessity of any other examination for a period of five years, unless sooner revoked by the State Board of Education, and at the expiration of said time, the same may be renewed for a like period of five years in the discretion of the State Board of Education, and at the expiration of this time, the same may be renewed for life upon presentation to the State Board of Education of satisfactory evidence of professional growth and efficiency; *Provided*, That the State Board of Education shall issue upon application, without examination, to those persons who possess the qualifications set forth in Section 4 of this act, experience in teaching alone excepted, a temporary, non-renewable certificate to teach for five years in the public schools of Colorado.

SCHOOL OF SOCIAL AND HOME SERVICE

FACULTY

LAWRENCE W. COLE, Ph.D.,
Director of the School of Social and Home Service.

The Faculty of the School of Social and Home Service consists of Professors and Instructors in the College of Liberal Arts, School of Medicine, School of Pharmacy, and the Training School for Nurses, whose work contributes to the various courses.

REGULAR COURSES

FUNCTION

The course in the School of Social and Home Service is designed for three classes of students: (a) Those who expect to enter training schools for nurses; (b) those desiring to enter social-service activities, such as belong to the work of charitable and corrective institutions, social settlements, etc.; (c) those who wish a short course to prepare themselves for the management of the home.

DESIGN OF CURRICULUM

As will be seen from an examination of the course of study there are four main lines of work which the student pursues, viz: (a) English, through the entire two years; (b) Science, as a foundation for a knowledge of health, represented by chemistry and the biological sciences, together with various applied subjects, such as Principles of Nursing, Principles of Surgery, Materia Medica, Clinical Laboratory Methods, Infant Hygiene; (c) Economics and Sociology, including Social Ethics; (d) Psychology.

The course is made up of subjects presented by members of the various faculties of the University. A detailed statement may be found in the announcements of the College of Liberal Arts, School of Medicine, School of Pharmacy, and the Training School for Nurses.

ADMISSION AND FEES

Entrance requirements and fees are the same as for students in the regular A.B. course. See pages 27, 28, 34.

RELATION TO THE REGULAR A.B. COURSE

Those who finish the entire course will receive 58 hours' credit toward the A.B. degree and can complete all the requirements for that degree by two years' additional work in properly selected college subjects.

CERTIFICATE

The course is so arranged that students will have preliminary training of considerable value even if obliged to drop the work at

the close of the first year. A certificate showing the work done will be issued to students who complete either one or two years of the course.

COURSE OF STUDY

FIRST YEAR

FIRST SEMESTER		SECOND SEMESTER	
ENGLISH	3	ENGLISH	3
CHEMISTRY	5	CHEMISTRY	5
SANITARY SCIENCE	2	HYGIENE	2
ANATOMY	3	PHYSIOLOGY	3
PRINCIPLES OF ECONOMICS	3	ECONOMIC HISTORY OF THE	
PRINCIPLES OF NURSING	2	UNITED STATES	3
<hr/>		<hr/>	
18		16	

SECOND YEAR

FIRST SEMESTER		SECOND SEMESTER	
ENGLISH	2	ENGLISH	2
LABOR PROBLEMS	3	PROBLEMS IN SOCIOLOGY	2
PSYCHOLOGY (GENERAL)	3	PSYCHOLOGY (EDUCATIONAL)	3
SOCIAL ETHICS	3	ACCOUNTING	3
BACTERIOLOGY	4	INFANT HYGIENE	1
INFANT HYGIENE	1	MATERIA MEDICA	2
		CLINICAL LABORATORY	
		METHODS	1
<hr/>		<hr/>	
16		14	

COLLEGE OF ENGINEERING

FACULTY

- LIVINGSTON FARRAND, A.M., M.D., LL.D., President of the University.
MILO S. KETCHUM, C.E., Dean; Professor of Civil Engineering.
*HERBERT S. EVANS, E.E., Professor of Electrical Engineering.
JOHN A. HUNTER, M.E., Professor of Mechanical Engineering.
JOHN BERNARD EKELEY, Ph.D., Sc.D., Professor of Chemistry.
OLIVER C. LESTER, Ph.D., Professor of Physics.
JOSEPH B. MORRILL, E.E., Acting Professor of Electrical Engineering.
HARRY A. CURTIS, B.S. (Ch.E.), Ph.D., Professor of Physical Chemistry.
DAVID R. JENKINS, E.E., Assistant Professor of Electrical Engineering.
WHITNEY C. HUNTINGTON, C.E., Assistant Professor of Civil Engineering.
HOWARD E. PHELPS, B.S. (C.E.), Assistant Professor of Civil Engineering.
FRANK S. BAUER, M.E., Assistant Professor of Mechanical Engineering.
FRANK G. ALLEN, B.S. (M.E.), Assistant Professor of Engineering Drawing.
CHARLES S. SPERRY, A.B., C.E., Acting Assistant Professor of Engineering Mathematics.
JAY W. WOODROW, Ph.D., Assistant Professor of Physics.
LYNN R. LEONARD, E.E., Instructor in Electrical Engineering.
IVAN C. CRAWFORD, C.E., Instructor in Civil Engineering.
WILLIAM J. CHRISTIAN, B.S. (M.E.), Instructor in Mechanical Engineering.
CHARLES M. McCORMICK, E.E., Instructor in Electrical Engineering.
JAMES L. MERRILL, B.S. (C.E.), Instructor in Engineering Drawing.
WALTER F. MALLORY, B.S. (M.E.), Instructor in Mechanical Engineering.
CLARENCE L. ECKEL, B.S. (C.E.), Instructor in Civil Engineering.
EDUARD F. GRUNDHOEFFER, B.S. (M.E.), Instructor in Mechanical Engineering.

*On leave of absence, 1915-1916.

*JAMES J. DOLAND, B.S. (C.E.), Instructor in Engineering Mathematics.

JOHN J. FLACH, B.S. (E.E.), Instructor in Engineering Mathematics.

LUCIEN H. SHATTUCK, B.S. (C.E.), Instructor in Civil Engineering.

CLAIR V. MANN, B.S. (C.E.), Instructor in Engineering Mathematics.

†WILLIAM R. BRACKETT, A.B., Instructor in Physics.

PAUL M. DEAN, A.M., Instructor in Chemistry.

JOHN H. V. FINNEY, B.S. (E.E.), Instructor in Physics.

CRAIG M. BOUTON, A.B., Instructor in Chemistry.

MATT W. MOYLE, B.S. (M.E.), Assistant in Mechanical Engineering.

WILBUR A. HITCHCOCK, B.S. (C.E.), Assistant in Engineering Mathematics.

FRANK F. BEVERLY, B.S. (Ch.E.), Assistant in Engineering Mathematics.

PROFESSORS AND INSTRUCTORS IN OTHER DEPARTMENTS

Giving Instruction in the College of Engineering.

RUSSELL D. GEORGE, A.M., Professor of Geology.

CLOUGH T. BURNETT, M.D., Professor of Bacteriology.

FREDERICK A. BUSHEE, Ph.D., Professor of Economics and Sociology.

PHILIP G. WORCESTER, A.M., Assistant Professor of Geology.

JESSIE HUTSINPILLAR, A.M., Instructor in English.

* Resigned, Feb. 1, 1916.

† On leave of absence, 1915-1916.

GENERAL STATEMENT

PURPOSE

The College of Engineering was established by the Regents in 1893. The aim in engineering education is to give a thorough training in science, mathematics, language, and mechanics, and in addition to give fundamental courses in engineering so that the graduate may be prepared to enter the profession of engineering.

The work of the first two years of all courses, with a few minor exceptions, is the same. It is aimed in these years to lay a broad foundation for the more specialized work of the last two years. To this end the work is largely theoretical in character, and comprises courses in mathematics, general chemistry and physics, mechanical drawing, rhetoric, and the elements of engineering subjects. Classroom and lecture work is supplemented wherever practicable by laboratory courses.

In the last two years the work is more specialized, and the fourth year is almost entirely devoted to technical work in the several branches of Engineering.

REQUIREMENTS FOR ADMISSION

See pages 27, 29.

ADMISSION TO ADVANCED STANDING

Students from other institutions will be admitted to any class not later than the first term of the senior year on passing examinations in the subjects given in the preceding years in the College of Engineering, or on presentation of satisfactory certificates, showing that the required work has been done in other technical schools. A certificate of honorable dismissal will also be required.

Graduates from other colleges will be admitted without examination, and allowed to pursue such courses as their previous work will permit.

By proper election of subjects in the collegiate course, such as sciences, mathematics, and languages, a graduate of the College of Liberal Arts can obtain his engineering degree in two years. Such a course affords a very broad general training, and is to be highly recommended. Students who expect to complete both the arts and

engineering courses should consult the Dean of the College of Engineering before registering in the University.

DEGREES

Upon the satisfactory completion of the prescribed and elective work in any course, the degree, Bachelor of Science in the course pursued, will be conferred.

The degree Master of Science (M.S.) is given upon completion of one year's graduate work in residence after having obtained the degree Bachelor of Science in Engineering. The year's work requires thirty (30) semester hours' credit, of which at least six (6) hours shall be devoted to a thesis.

A candidate for the degree Master of Science in Sanitary Engineering must have received the degree B.S. in Engineering from this University; or if graduated elsewhere, he must satisfy the faculty that he possesses equivalent attainments. In his previous work he must have included courses in Elementary Bacteriology, Water Supply, Sewerage, and Structural Engineering. Study and residence for not less than one year and a thesis on an approved subject are required. A year's work includes thirty (30) hours, of which not less than six (6) hours should be given to the thesis. A student who has received the degree Master of Science in Sanitary Engineering may become a candidate for the degree Doctor of Public Health.

The degree Civil Engineer (C.E.), Electrical Engineer (E.E.), or Mechanical Engineer (M.E.), is given for one year's academic work, and a thesis, after the candidate has had at least one year's responsible charge of engineering work. The year's work requires thirty (30) semester hours' credit, not less than twenty (20) hours of which must be in the same line as the candidate's undergraduate work, and the thesis which requires at least six (6) semester hours' credit, or a total of thirty-six (36) semester hours, required for the degree. One year of residence is required of all resident graduate students. The academic work for graduates of this Institution need not be done in residence. A non-resident candidate must be registered for at least two years before coming up for the degree of Engineer.

For further details of graduate work, see the Graduate School.

EQUIPMENT

BUILDINGS.

The College of Engineering occupies the Engineering Building and the Engineering Shops situated at the eastern end of the quadrangle. The buildings are well planned for engineering instruction and are devoted entirely to the technical work of the College.

ENGINEERING BUILDING—The basement contains the applied mechanics, timber testing, hydraulics, road materials testing, and cement laboratories.

ENGINEERING SHOPS—The Shops Building consists of a one-story section containing a foundry, a forge shop, and a machine shop, and a two-story section containing a wood-bench shop and a wood-turning shop on the first floor, and a freshman drawing room on the second floor. The mechanical engineering laboratory and the oil testing laboratory occupy a section of the building forty by ninety feet. The one-story section is lighted by means of a modified saw-tooth roof.

CIVIL ENGINEERING EQUIPMENT.

The Department of Civil Engineering possesses an extensive equipment of surveying instruments of the various standard makes, consisting of engineer's transits, solar attachments, mining transits, compasses, engineer's levels, solar compasses, plane tables, a sextant, barometers, chains and tapes, as well as smaller instruments.

The department has two bridge extensometers, manufactured by the Wissler Instruments Works, together with other necessary equipment for the determination of stresses in bridge trusses due to static and moving loads.

Standard apparatus for determining color, turbidity, and other physical properties of water, has been added to the facilities for instruction in sanitary engineering.

The department also possesses an ample collection of drawings, blue prints, and photographs for use in design.

Cement Laboratory.

The Cement Laboratory is equipped with a 2000-pound Fairbanks shot machine, a 2000-pound Riehle cement machine, briquette molds, tanks, Gilmore needles, vicat apparatus, sieves, hot water tanks, specific gravity apparatus, slate slabs, sample barrels of cement, and other necessary apparatus.

Hydraulics Laboratory.

The equipment of the Hydraulics Laboratory consists of tanks supplied with various shaped notches and orifices for discharge instruments, pipes arranged for determining resistance to flow in same, standard orifices and tubes. The laboratory also contains a Venturi meter, water meters, piezometers, current meters, an A Doble 12-inch experimental water wheel equipped for experimental work, three centrifugal pumps, Pitot's tubes, a hook gage, platform scales, hose, and various smaller pieces of hydraulic apparatus.

Laboratory of Applied Mechanics.

The laboratory of Applied Mechanics is equipped with a 30,000-pound Olsen testing machine; a 100,000-pound Olsen testing machine; a 200,000-pound Riehle testing machine that will test a 16-foot beam and an 8-foot column; extensometers; compressometers; a 50,000-in.-lb. Olsen torsion testing machine; a stone saw; and miscellaneous small tools and apparatus necessary for making commercial tests of iron, steel, brick, stone and wood. The laboratory is equipped with a brick rattler, and all other equipment necessary for making commercial tests of paving brick. The equipment of the cement laboratory is available for work in testing cements, mortars, and concrete.

The Laboratory also contains the following equipment especially designed for the work of the U. S. Government Timber Testing Station: a planer, a rip and crosscut saw, a drying oven, a three-point loader, a photographic dark room with full equipment, and miscellaneous tools.

Road Materials Testing Laboratory.

The equipment of the road materials testing laboratory consists of a Page impact machine for testing toughness of rock; a Page impact machine for cementation test; a two cylinder abrasion machine, Deval type; a Dorry hardness machine; a grinding lap; drying oven; drill press; diamond stone saw; a ball mill, and other minor equipment for making commercial tests of road materials.

ELECTRICAL ENGINEERING LABORATORIES.

The Electrical Engineering Laboratories are well equipped for the study of direct and alternating current appliances, electrical testing, and the investigation of problems concerning the design, installation and operation of electrical apparatus.

Dynamo Laboratories.

The laboratories include in their equipment twelve complete motor-generator sets for testing purposes. These twelve sets range in capacity from one to fifty horse-power and include both direct current and alternating current motors and generators of various types and designs; some are direct connected, and some are belt connected. There are three double current generators that may be used as single-phase or three-phase synchronous converters, and also a regulating-pole synchronous converter with special features. In addition there is a large amount of miscellaneous equipment such as: a special convertible laboratory set; railway motors; Brush arc-lighting dynamos; etc. Switchboards with plugs and jacks, and arranged for trunking between different laboratories, are provided in each laboratory. Control devices and apparatus are provided for all equipment. Prony brakes and a cradle dynamometer are provided for individual tests. The University power plant is available for testing purposes and affords special opportunities for commercial and operation tests.

Transformer Laboratory.

The transformer equipment comprises four three-phase banks of transformers of various capacities; two sets of transformers for two- to three-phase transformation, or vice versa; an auto-transformer of special design, giving wide range of voltages; a twelve-light constant current transformer; a Cooper-Hewitt mercury-arc rectifier; and other transformers for special purposes.

Photometry Laboratory.

The photometer room contains a Reichsanstalt photometer with a 250 centimeter scale, equipped with both Bunsen and Lummer Brodhun screens, a special integrating arc-light photometer, a 5-foot Ulbricht sphere, and a Macbeth illuminometer. The standards include an amylacetate (Hefner) lamp, and seasoned carbon and tungsten incandescent lamps certified by the United States Bureau of Standards. The necessary accessories for exact photometric work are included in the equipment.

Telephone Apparatus.

For the use of classes in telephony, there is a complete telephone laboratory equipment, consisting of a number of different

types of subscribers' sets, together with the necessary central office apparatus and protective devices.

High Frequency and High Potential Equipment.

For the investigation of high tension and high frequency phenomena, the transformer laboratory is equipped with a 22,000 volt transformer, a 50,000 volt special testing transformer, a large condenser, and a number of Tesla coils of special construction.

Electrical Standardizing Laboratory.

The department has a very complete equipment for testing and calibrating all types of electrical measuring instruments for both alternating and direct currents.

Besides the standards, which are among the best obtainable, the equipment comprises a number of motor-generator sets from which may be obtained a wide range of voltages and currents, and all commercial frequencies and power factors.

Measuring Instruments.

The department possesses a large equipment of wattmeters, alternating and direct current ammeters and voltmeters of various ranges and representative makes.

A great variety of integrating wattmeters are used for experimental purposes, and synchronizers, water rheostats, two lamp banks, a transformer bank and other accessories are provided for testing work.

Commercial Testing.

The University power plant affords the students an excellent opportunity for making commercial tests. The equipment consists of a 150-K.W. three-phase slow speed unit; a 75-K.W. three-phase direct connected alternator with belted exciter; a 35-K.W. direct current compound generator, direct connected; a 25-K.W. steam turbine exciter unit; a 35-K.W. motor generator set; and a thoroughly modern ten-panel switchboard.

MECHANICAL ENGINEERING LABORATORY.

The Mechanical Laboratory contains viscosimeters and similar apparatus for testing viscosity and other qualities of lubricating oils; calorimeters for determining dryness and heat of steam; injectors and water meters for measuring water for boiler trials;

thermometers and pyrometers for measurement of temperatures; Bunte gas burrettes and chemical reagents for tests of chimney flue gases; anemometers for study of heating and ventilation; calorimeters for the determination of the value of fuels; indicators, reducing motions and planimeters for indicator tests of engines; hydrometers for determinations of specific gravity of liquids; micrometers and extensometers for fine measurements; gauges and manometers for pressures; a Westinghouse Air Brake outfit; a hydraulic ram, engines, pumps, condensers, and a two-ton ice machine. The University power plant and heating system, consisting of three boilers of 600 horse-power capacity, a 225 horse-power Murry Corliss engine, a 125 horse-power Chuse engine, a Leyner air compressor, a 50 horse-power Harrisburg engine, several blowers and pumps furnish opportunities for efficiency tests of boilers with different fuels and of the engines at varying loads.

Workshop Equipment.

The forge equipment consists of the latest type of Buffalo down-draft forges, each with anvil, providing accommodations for twenty students at each session, and also accessory tools for forging, welding, and tool dressing.

The foundry contains a Newton cupola furnace, capable of melting two tons of iron per hour, ladles, flasks, and all necessary small tools, and a stock of patterns. The forges and cupola are served by three centrifugal fans, which are operated by a ten horse-power electrical motor.

The machine shop is equipped with iron workers' benches, planers, a milling machine, speed lathes, engine lathes, a shaper, grindstones, and other tools.

The wood shops occupy two rooms on the first floor, each shop has its own tool room, and is well equipped with benches and speed lathes for fitting and turning work.

GENERAL ENGINEERING DRAWING.

The apparatus for instruction and practice consists of over one hundred models, two folding plane frames of special design, a pantograph, a universal drafting machine, and numerous special drawing instruments. Besides the usual apparatus of frames, bath, and dark room for sun blue printing, the department has an electric blue printing machine.

ENGINEERING LIBRARY.

In addition to books on engineering and scientific subjects in the main University library there is an engineering library located in the Engineering Building. The engineering library contains files of bound volumes of proceedings and transactions of engineering societies, and of most of the best known engineering magazines in America and Europe. A trained librarian is in charge of the engineering library, which is operated as a branch of the main library of the University. The files of proceedings of societies and magazines are made more usable through a very complete set of indexes to engineering literature. The library also contains the standard encyclopedias and dictionaries, as well as numerous standard reference books.

LABORATORY FEES (FOR MATERIAL)*

(Per semester, collected only from students who take the particular courses.)

C.E. 1	Plane Surveying	\$3.00
C.E. 2	Higher Surveying	3.00
C.E. 3	Surveying	2.00
C.E. 4	Railroad Curves	1.00
C.E. 9	Applied Mechanics Laboratory.....	2.00
C.E. 12	Hydraulics Laboratory	2.00
C.E. 17	Structural Details	1.00
C.E. 18	Bridge Details .....	.50
C.E. 20	Algebraic and Graphic Statics.....	1.00
C.E. 21	Bridge Analysis	1.00
C.E. 22	Bridge Design	2.50
C.E. 23	Architectural Construction	1.00
C.E. 24	Steel Mill Buildings.....	1.00
C.E. 25	Office Buildings	1.00
C.E. 26	Structural Engineering	1.00
C.E. 27	Mine and Mill Structures.....	1.00
C.E. 28	Higher Structures	1.00
C.E. 31	Masonry Construction	1.00
C.E. 32	Reinforced Concrete Structures.....	.50
C.E. 41	Highway Engineering	2.00

* See also under description of courses, page 145. For laboratory fees for courses in Chemistry, Physics, and Geology, see pages 34, 35, and for tuition and other fees see pages 34, 35.

C.E. 42	Railroad Engineering.....	\$2.00
C.E. 43	Railroad Terminals and Block Signals.....	1.00
C.E. 44	Railway Maintenance	1.00
C.E. 47	Railway Structures	1.00
C.E. 59	Irrigation Structures	1.00
E.E. 14	Central Station Design.....	1.00
E.E. 21	Direct Current Laboratory.....	2.00
E.E. 22	Direct Current Laboratory.....	4.00
E.E. 23	Alternating Current Laboratory.....	4.00
E.E. 24	Alternating Current Laboratory.....	2.00
E.E. 25	E.E. Laboratory.....	2.00
E.E. 26	Photometry Laboratory.....	2.00
E.E. 31	Electrical Design	1.00
E.E. 32	Electrical Design	1.00
E.E. 42	Electric Railway Design.....	1.00
E.E. 43	Design of Electric Railway Equipment.....	1.00
M.E. 23	M.E. Laboratory	2.00
M.E. 24	Steam Engine Laboratory.....	4.00
M.E. 25	M.E. Laboratory	4.00
M.E. 31	Machine Drawing	1.00
M.E. 32	Machine Design	1.00
M.E. 33	Machine Design	1.00
M.E. 35	Machine Design	1.00
M.E. 36	Steam Engine and Boiler Design.....	1.50
M.E. 37	Locomotive Design	1.50
M.E. 38	Power Plant Design.....	1.00
M.E. 39	Locomotive Shop and Terminal Design.....	1.00
M.E. 40	Chemical Engineering Design.....	1.50
Shop 1	Woodworking	4.00
Shop 2	Forging	4.00
Shop 3	Pattern Making.....	2.00
Shop 4	Foundry	4.00
Shop 5	Machine Shop.....	6.00
Shop 6	Machine Shop and Foundry.....	4.00
Draw. 1	Mechanical Drawing	2.00
Draw. 2	Descriptive Geometry	2.00
Draw. 3	Free-Hand Drawing	2.00
Eng.Math.7	Geodesy and Least Squares.....	1.00

SUMMARY OF LABORATORY FEES.

Year	Semester	COURSE			
		Civil	Elect.	Mech.	Chem.
Freshman	First	\$8.00	\$8.00	\$8.00	\$8.00
Freshman	Second	8.00	8.00	8.00	8.00
Sophomore	First	7.00	11.00	11.00	16.00
Sophomore	Second	6.00	8.00	10.00	9.00
Junior	First	5.00	7.00	7.00	7.00
Junior	Second	6.50	7.00	7.00	9.00
Senior	First	4.50	10.00	6.50	6.50
Senior	Second	4.50	7.00	7.00	11.00
Total .....	.....	\$49.50	\$66.00	\$64.50	\$74.50

ENGINEERING COURSES

CIVIL ENGINEERING

This course is especially arranged to meet the needs of the Irrigation, Highway, Structural, and Railway Engineer; and has majors in hydraulics, construction of dams, construction of roads and pavements, location of roads and railroads, location of reservoirs and canals, water power engineering, irrigation engineering, structural engineering, and railroad engineering. While the work is made practical by giving the student a large amount of practice in the field, the drafting and computing room, and the laboratory, the main object is the development of the mental faculties and judgment of the student.

The general studies and surveying of the first two years lead up to courses in theoretical and applied mechanics, railroads, roads and pavements, hydraulics, graphic statics and geodesy in the junior year, followed in the senior year by courses in bridge design, office building design, design of mill buildings and bins, water supply, sewerage, masonry construction, reinforced concrete construction, irrigation engineering, and railroad engineering.

Besides instruction in strictly engineering subjects, courses are given in economics, rhetoric, geology, bacteriology, astronomy, and the law of contracts.

Numerous inspection trips are made during the junior and senior years, to give the students an opportunity to get in touch with the practical side of engineering work.

ELECTRICAL ENGINEERING

It is the aim of the Department of Electrical Engineering to provide thorough theoretical and practical training for those desirous of engaging in the various applications of electricity.

Electrical engineering work proper begins in the junior year with courses in electricity and magnetism, theory and method of electrical measurements with direct applications to the theory, design and operation of continuous current apparatus. The theoretical work in alternating currents is begun in the second semester of this year.

The senior year is largely devoted to a study of the design and operation of alternating current apparatus, such as generators, transformers, synchronous and induction motors, rotary converters and transformers; distribution and transmission, electric traction and power plant construction and operation, lighting and metering; the telephone and telegraph; and other applications of electricity to the arts. The design of apparatus is studied by lectures and solution of problems in the drawing room.

Particular attention is given throughout to the proper correlation of classroom study to laboratory work; to this end courses are given in the testing and handling of the various types of direct and alternating current machinery. In connection with the work in lighting and illumination, complete tests are made of the various types of electric lamps. Frequent inspection trips are made to the numerous large power plants in the vicinity, and every opportunity is taken to acquaint the student with the engineering problems of his profession.

MECHANICAL ENGINEERING

This course is intended to train students along the broad lines of Mechanical Engineering. In the second year the students are given practical instruction in elementary studies of the kinematics of machinery and of machine design.

In the junior and senior years the course includes the theory of machine design, valve-gear movements, applied mechanics of both building structures and moving machinery; thermodynamics, including the study of steam, gasoline, and refrigerator engines; the theory of direct current electricity, and practical instruction in designing specific machines and power plants; shop-work; thorough instruction in the electrical and mechanical laboratories, in efficiency tests of engines, boilers, motors, blowers, pumps, calorimeters, injectors, etc., as well as general tests of boiler feed waters, lubricating oils, cements, flue gases, steam, fuels, steel and iron. Students are also given instruction in conducting practical duty trials of power plants.

CHEMICAL ENGINEERING

The great development in the United States during the last decade, of chemical and metallurgical industries, such as the manufacture of alkalies, fertilizers, beet sugar, Portland cement, by-

products from coal and petroleum, acids from sulphide ores, plate glass, pottery, etc., where a combined knowledge of mechanical engineering and chemistry is needed for competent supervision, has suggested the inauguration of this course. The course in Chemical Engineering is designed to give a major in chemistry and to give fundamental training in engineering. Students taking this course pursue courses in chemistry, physics, mathematics, and mechanics for the first two years; in the junior and senior years they are given special instruction in designing chemical machinery and in chemical analysis of fuels, gases, steel and iron, electrometallurgy, etc.

REQUIREMENTS FOR DEGREE BACHELOR OF SCIENCE IN ENGINEERING

CIVIL ENGINEERING

FRESHMAN YEAR

FIRST SEMESTER		SECOND SEMESTER	
Algebra	(Eng. Math. 1)* 3	Analytic Geometry	
Trigonometry	(Eng. Math. 2) 2		(Eng. Math. 3) 5
Chemistry Lectures	(Chem. 1) 3	Chemistry Lectures	(Chem. 1) 3
Chemistry Laboratory		Chemistry Laboratory	
	(Chem. 2) 2		(Chem. 2) 2
Rhetoric	(English 1) 3	Rhetoric	(English 2) 3
Drawing	(Draw. 1) 3	Engineering Literature	
			(English 3) 2
		Descriptive Geometry	
			(Draw. 2) 3
	16		18

SOPHOMORE YEAR

FIRST SEMESTER		SECOND SEMESTER	
Differential Calculus		Integral Calculus	
	(Eng. Math. 4) 5		(Eng. Math. 5) 5
Physics	(Phys. 1 and 3) 5	Physics	(Phys. 2 and 4) 5
Railroad Curves	(C. E. 4) 2	Technical Mechanics	(C. E. 6) 2
Plane Surveying	(C. E. 1) 4	Higher Surveying	(C. E. 2) 4
Roads and Pavements		Engineering Materials	
	(C. E. 40) 1		(C. E. 14) 2
Timber Structures	(C. E. 16) 1		
	18		18

JUNIOR YEAR

FIRST SEMESTER		SECOND SEMESTER	
Technical Mechanics	(C. E. 7) 3	Hydraulics	(C. E. 11) 2
Applied Mechanics	(C. E. 8) 3	Hydraulics Laboratory	
Applied Mechanics Laboratory			(C. E. 12) 1
	(C. E. 9) 1	Geodesy	(Eng. Math. 7),
Geology	(Geol. 3) 3	Geology	(Geol. 4), or
Railroads	(C. E. 42) 4	Economics	(Econ. 2) 3
Structural Details	(C. E. 17) 2	Steam Engines and Boilers	
Technical Writing	(English 4) 2		(M. E. 6) 2
		Algebraic and Graphic Statics	
			(C. E. 20) 3
		Bridge Details	(C. E. 18) 1
		Option 1	2
		Option 2	2
		Bacteriology	(C. E. 50) 2
	18		18

*These references are to the description of courses in the College of Liberal Arts or to the description of courses in the College of Engineering.

SENIOR YEAR

FIRST SEMESTER

Bridge Analysis	(C. E. 21)	3
Steel Mill Buildings	(C. E. 24)	3
Water Supply	(C. E. 51)	3
Reinforced Concrete Structures	(C. E. 32)	2
Masonry Construction	(C. E. 31)	5
Option 3		2

 18

SECOND SEMESTER

Bridge Design	(C. E. 22)	3
Higher Structures	(C. E. 28)	3
Engineering Contracts and Specifications	(C. E. 60)	2
Option 4		2
Sewerage	(C. E. 52)	2
C. E. Seminar	(C. E. 61)	1
Thesis* or Option 5		3

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OPTIONS IN CIVIL ENGINEERING COURSE

Civil engineering students in the junior year shall elect to take the courses in one of the three groups of options. These options are grouped under the head of Structural Engineering, of Railway Civil Engineering, and of Irrigation and Highway Engineering. No grouping of options other than as given will be permitted.

STRUCTURAL ENGINEERING

1. Architectural Construction (C. E. 23) 2
2. Heating and Ventilation (M. E. 10) 2
3. Office Buildings (C. E. 25) 2
4. Advanced Applied Mechanics (C. E. 10) 2
5. Mine and Mill Structures (C. E. 27) 3

RAILWAY CIVIL ENGINEERING

1. Railway Maintenance (C. E. 44) 2
2. Railway Terminals (C. E. 43) 2
3. Railway Operation (C. E. 45) 2
4. Modern Railway Problems (C. E. 46) 2
5. Railway Structures (C. E. 47) 3

IRRIGATION AND HIGHWAY ENGINEERING

1. Canal and Reservoir Location (C. E. 56) 2
2. Highway Engineering (C. E. 41) 2
3. Water Power Engineering (C. E. 57) 2
4. Irrigation Engineering (C. E. 58) 2
5. Irrigation Structures (C. E. 59) 3

*Only exceptional students are permitted to elect thesis.

ELECTRICAL ENGINEERING

FRESHMAN YEAR

FIRST SEMESTER		SECOND SEMESTER	
Algebra	(Eng. Math. 1) 3	Analytic Geometry	
Trigonometry	(Eng. Math. 2) 2		(Eng. Math. 3) 5
Chemistry Lectures	(Chem. 1) 3	Chemistry Lectures	(Chem. 1) 3
Chemistry Laboratory		Chemistry Laboratory	
	(Chem. 2) 2		(Chem. 2) 2
Rhetoric	(English 1) 3	Rhetoric	(English 2) 3
Drawing	(Draw. 1) 3	Engineering Literature	
			(English 3) 2
		Descriptive Geometry	
			(Draw. 2) 3
	<hr/> 16		<hr/> 18

SOPHOMORE YEAR

FIRST SEMESTER		SECOND SEMESTER	
Differential Calculus		Integral Calculus	
	(Eng. Math. 4) 5		(Eng. Math. 5) 5
Physics	(Phys. 1 and 3) 5	Physics	(Phys. 2 and 4) 5
Forging	(Shop 2) 2	Machine Shop and	
Wood Shop	(Shop 1) 2	Foundry	(Shop 6) 2
Kinematics	(M. E. 1) 2	Machine Drawing	(M. E. 31) 2
Machine Drawing	(M. E. 30) 1	Engineering Materials	
Electric and Magnetic			(E. E. 16) 2
Circuits	(E. E. 7) 1	Theoretical Mechanics	
			(Phys. 5) 2
	<hr/> 18		<hr/> 18

JUNIOR YEAR

FIRST SEMESTER		SECOND SEMESTER	
Theoretical Mechanics		Applied Mechanics	(C. E. 8) 3
	(Phys. 6) 3	Applied Mechanics	
Steam Engines and Boilers		Laboratory	(C. E. 9) 1
	(M. E. 6) 2	Thermodynamics	(M. E. 7) 3
Direct Current Machines		Differential Equations	
	(E. E. 1) 3		(Eng. Math. 6) 2
Illumination and Photometry		Alternating Current	
	(E. E. 8) 2	Machines	(E. E. 2) 3
Theory of Electricity and		Direct Current	
Magnetism	(Phys. 8) 4	Laboratory	(E. E. 22) 2
Electrical Measurements		Technical Writing	(English 4) 2
	(Phys. 9) 2	Machine Design	(M. E. 35) 2
M. E. Laboratory	(M. E. 23) 1		
Direct Current Laboratory			
	(E. E. 21) 1		
	<hr/> 18		<hr/> 18

SENIOR YEAR

FIRST SEMESTER

Theory of Alternating Currents	(E. E. 3)	4
Alternating Current Laboratory	(E. E. 23)	2
Hydraulics	(C. E. 11)	2
Steam Engine Laboratory	(M. E. 24)	2
Structural Engineering	(C. E. 26)	2
Transmission and Distribution	(E. E. 6)	2
Option 1		2
Option 2		2

18

SECOND SEMESTER

Theory of Alternating Currents	(E. E. 4)	2
Alternating Current Laboratory	(E. E. 24)	1
Engineering Contracts and Specifications	(C. E. 60)	2
Photometry Laboratory	(E. E. 26)	1
E. E. Seminar	(E. E. 12)	1
Surveying	(C. E. 3)	2
Option 3		2
Option 4		2
Thesis* or Option 5		3

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OPTIONS IN ELECTRICAL ENGINEERING COURSE

Electrical engineering students in the senior year shall elect to take the courses in one of the two groups of options. These options are grouped under the head of Power and Lighting Engineering and of Railway Electrical Engineering. No grouping of options other than as given will be permitted.

POWER AND LIGHTING ENGINEERING

1. Electric Traction	(E. E. 44)	2
2. Electrical Design	(E. E. 31)	2
3. Central Station Design	(E. E. 14)	2
4. Telephone Engineering	(E. E. 5)	2
5. Wave Analysis	(E. E. 18)	3

RAILWAY ELECTRICAL ENGINEERING

1. Electric Railway Engineering	(E. E. 40)	2
2. Design of Electric Railway Equipment	(E. E. 43)	2
3. Electric Railway Design	(E. E. 42)	2
4. Electric Railway Engineering	(E. E. 41)	2
5. Wave Analysis	(E. E. 18)	3

*Only exceptional students are permitted to elect thesis.

MECHANICAL ENGINEERING

FRESHMAN YEAR

FIRST SEMESTER			SECOND SEMESTER		
Algebra	(Eng. Math. 1)	3	Analytic Geometry		
Trigonometry	(Eng. Math. 2)	2		(Eng. Math. 3)	5
Chemistry Lectures	(Chem. 1)	3	Chemistry Lectures	(Chem. 1)	3
Chemistry Laboratory			Chemistry Laboratory		
	(Chem. 2)	2		(Chem. 2)	2
Rhetoric	(English 1)	3	Rhetoric	(English 2)	3
Drawing	(Draw. 1)	3	Engineering Literature	(English 3)	2
			Descriptive Geometry		
				(Draw. 2)	3
		<hr/> 16			<hr/> 18

SOPHOMORE YEAR

FIRST SEMESTER			SECOND SEMESTER		
Differential Calculus			Integral Calculus		
	(Eng. Math. 4)	5		(Eng. Math. 5)	5
Physics	(Phys. 1 and 3)	5	Physics	(Phys. 2 and 4)	5
Wood Shop	(Shop 1)	2	Foundry	(Shop 4)	2
Forging	(Shop 2)	2	Pattern Making	(Shop 3)	1
Kinematics	(M. E. 1)	2	Technical Mechanics	(C. E. 6)	2
Machine Drawing	(M. E. 30)	1	Engineering Materials		
Engineering Materials				(M. E. 3)	1
	(M. E. 2)	1	Machine Drawing	(M. E. 31)	2
		<hr/> 18			<hr/> 18

JUNIOR YEAR

FIRST SEMESTER			SECOND SEMESTER		
Technical Mechanics	(C. E. 7)	3	Hydraulics	(C. E. 11)	2
Applied Mechanics	(C. E. 8)	3	Applied Mechanics		
Steam Engines and Boilers			Laboratory	(C. E. 9)	1
	(M. E. 4)	4	Thermodynamics	(M. E. 8)	2
Electrical Machinery	(E. E. 9)	2	Electrical Machinery		
Machine Design	(M. E. 32)	3		(E. E. 10)	3
Machine Shop	(Shop 5)	3	E. E. Laboratory	(E. E. 25)	1
			Technical Writing	(English 4)	2
			Machine Design	(M. E. 33)	2
			Mechanics of Machinery		
				(M. E. 34)	2
			M. E. Laboratory	(M. E. 23)	1
			Option 1		2
		<hr/> 18			<hr/> 18

SENIOR YEAR

FIRST SEMESTER		SECOND SEMESTER	
Thermodynamics	(M. E. 9) 2	Steam Turbines	(M. E. 17) 3
Automobiles and Gas Engines	(M. E. 12) 2	Engineering Contracts and Specifications	(C. E. 60) 2
Steam Engine Laboratory	(M. E. 24) 2	M. E. Laboratory	(M. E. 25) 2
Hydraulic Machinery	(M. E. 13) 2	Compressed Air	(M. E. 18) 2
M. E. Seminar	(M. E. 16) 1	Surveying	(C. E. 3) 2
Valve Gears	(M. E. 15) 1	Option 3	2
Works Management	(M. E. 14) 2	Thesis* or Option 4	3
Structural Engineering	(C. E. 26) 2		
Option 2	4		
	<hr/> 18		<hr/> 16

OPTIONS IN MECHANICAL ENGINEERING COURSE

Mechanical engineering students in the junior year shall elect to take the courses in one of the two groups of options. These options are grouped under the head of General Mechanical Engineering and of Railway Mechanical Engineering. No grouping of options other than as given will be permitted.

GENERAL MECHANICAL ENGINEERING

1. Heating and Ventilation (M. E. 10) 2
2. Steam Engine and Boiler Design (M. E. 36) 4
3. Refrigerating Machinery (M. E. 19) 2
4. Power Plant Design (M. E. 38) 3

RAILWAY MECHANICAL ENGINEERING

1. Locomotives and Air Brakes (M. E. 11) 2
2. Locomotive Design (M. E. 37) 4
3. Railway Operation and Signals (M. E. 20) 2
4. Locomotive Shop and Terminal Design (M. E. 39) 3

*Only exceptional students are permitted to elect thesis.

CHEMICAL ENGINEERING

FRESHMAN YEAR

FIRST SEMESTER		SECOND SEMESTER	
Algebra	(Eng. Math. 1) 3	Analytic Geometry	
Trigonometry	(Eng. Math. 2) 2		(Eng. Math. 3) 5
Chemistry Lectures	(Chem. 1) 3	Chemistry Lectures	(Chem. 1) 3
Chemistry Laboratory		Chemistry Laboratory	
	(Chem. 2) 2		(Chem. 2) 2
Rhetoric	(English 1) 3	Rhetoric	(English 2) 3
Drawing	(Draw. 1) 3	Engineering Literature	
			(English 3) 2
		Descriptive Geometry	
			(Draw. 2) 3
	16		18

SOPHOMORE YEAR

FIRST SEMESTER		SECOND SEMESTER	
Differential Calculus		Integral Calculus	
	(Eng. Math. 4) 5		(Eng. Math. 5) 5
Physics	(Phys. 1 and 3) 5	Physics	(Phys. 2 and 4) 5
Qualitative Analysis	(Chem. 3) 3	Quantitative Analysis	
Quantitative Analysis			(Chem. 6) 3
	(Chem. 5a and 5b) 4	Technical Mechanics	(C. E. 6) 2
Engineering Materials		Engineering Materials	
	(M. E. 2) 1		(M. E. 3) 1
	18	Kinematics	(M. E. 1) 2
			18

JUNIOR YEAR

FIRST SEMESTER		SECOND SEMESTER	
Technical Mechanics	(C. E. 7) 3	Applied Mechanics	(C. E. 8) 3
Steam Engines and Boilers	(M. E. 6) 2	Applied Mechanics Laboratory	(C. E. 9) 1
Physical Chemistry Lectures	(Chem. 17) 3	Thermodynamics	(M. E. 7) 3
Machine Drawing	(M. E. 30) 1	Machine Design	(M. E. 35) 2
Machine Drawing	(M. E. 31) 2	Physical Chemistry Lectures	(Chem. 17) 3
Electrical Machinery		Electrical Machinery	
	(E. E. 9) 2		(E. E. 10) 3
Technical Writing	(English 4) 2	E. E. Laboratory	(E. E. 25) 1
M. E. Laboratory	(M. E. 23) 1	Physical Chemistry Laboratory	
Ore Analysis	(Chem. 10) 2		(Chem. 18) 2
	18		18

SENIOR YEAR

FIRST SEMESTER		SECOND SEMESTER	
Hydraulics	(C. E. 11) 2	Economic Geology	(Geol. 4) 3
Steam Engine Laboratory	(M. E. 24) 2	Engineering Contracts and Specifications	(C. E. 60) 2
Structural Engineering		Organic Preparations	
	(C. E. 26) 2		(Chem. 14) 3
Engineering Geology	(Geol. 3) 3	Industrial Chemistry	
Works Management	(M. E. 14) 2		(Chem. 22) 3
Organic Chemistry Lectures	(Chem. 12) 4	Surveying	(C. E. 3) 2
Chemical Engineering Design	(M. E. 40) 3	Thesis* or Steam Turbines	
			(M. E. 17) 3
	18		16

*Only exceptional students are permitted to elect thesis.

DESCRIPTION OF COURSES

CIVIL ENGINEERING

DEAN KETCHUM, ASSISTANT PROFESSORS HUNTINGTON AND PHELPS, AND MR. CRAWFORD, MR. ECKEL, AND MR. SHATTUCK:—

1. PLANE SURVEYING. First semester. One hour lecture, nine hours in field. 4 h.

Instruction is given in the theory of surveying and in the theory, use and adjustment of the compass, level, transit, plane table and sextant. The field work includes pacing and chaining surveys; compass and transit traverses; measurement of angles by repetition; differential, profile, and contour leveling; traverses with the plane-table, etc. Maps and reports are required. Considerable time is given to a study of U. S. Land Survey methods, and to court decisions relating to relocation of corners, lines, and boundaries. Fee, \$3.00.

Textbook: Pence and Ketchum's Surveying Manual.

Prerequisite: Eng. Math. 1 and 2, and Draw. 1.

2. HIGHER SURVEYING. Second semester. One hour lecture, nine hours in field. 4 h.

In this course the different methods of making topographic surveys are discussed. A complete topographic survey based on a carefully designed triangulation system is made. The calculations are made and a map is drawn. Considerable time is devoted to topographic drawing. Fee, \$3.00.

Textbooks: Pence and Ketchum's Surveying Manual, Wilson's Topographic Surveying, and notes by the Department.

Prerequisite: C.E. 1.

3. SURVEYING. Second semester. Six hours in field. 2 h.

A brief course in surveying and in the theory and use of the level, transit, and other instruments, for electrical, mechanical, and chemical engineering students. The work covers problems in pacing, chaining, compass and transit surveys,

profile and contour leveling, laying out buildings, etc. Fee, \$2.00.

Textbook: Pence and Ketchum's Surveying Manual.

Prerequisite: Eng. Math. 1, 2 and 3, Draw. 1, and Phys. 1 to 4.

4. RAILROAD CURVES. First semester. One hour lecture, three hours in field. 2 h.

A study is made of simple, compound, reversed, parabolic curves, and the transition spiral. Instruction consists of recitations, problems, and field locations. Fee, \$1.00.

Textbook: Allen's Railroad Curves and Earthwork.

Prerequisite: To be taken with C.E. 1.

6. TECHNICAL MECHANICS. Either semester. 2 h.

The mechanics of engineering rather than of astronomy and physics is here considered. Particular attention is given to developing and fixing fundamental concepts of equilibrium and motion as applied to engineering problems. Both algebraic and graphic methods of the calculation of problems are considered. This course is followed by C.E. 7.

Textbook: Maurer's Technical Mechanics.

Prerequisite: Eng. Math. 4, and Phys. 1, and to be taken with Eng. Math. 5.

7. TECHNICAL MECHANICS. Either semester. 3 h.

A continuation of C.E. 6.

Textbook: Maurer's Technical Mechanics.

Prerequisite: Eng. Math. 5 and C.E. 6.

8. APPLIED MECHANICS. Either semester. 3 h.

This course covers the elasticity of materials; stress and strain; working stresses; resistance of pipes and riveted joints; bending moment; resisting moment; shear; elastic curve of beams; torsion; internal stress; fatigue of metals; etc.

Textbook: Merriman's Mechanics of Materials.

Prerequisite: Eng. Math. 4 and 5, and Phys. 5 and 6, or C.E. 6 and to be taken with C.E. 7.

9. APPLIED MECHANICS LABORATORY. Either semester. Three hours in laboratory. 1 h.

Experiments on strength of steel, wrought and cast iron; shear on rivets; strength of wood; and tensile and compressive

strength of Portland cement, brick and building stone. Fee, \$2.00.

Prerequisite: To be taken with C.E. 8.

10. ADVANCED APPLIED MECHANICS. Second semester. 2 h.

This course covers an extended discussion of combined stresses, resilience, stresses in beams, deflection of beams, torsion, pipes and cylinders, curved bars, and arches.

Textbook: Morley's Strength of Materials.

Prerequisite: C.E. 8 and 20.

11. HYDRAULICS. Either semester. 2 h.

This course covers the weight and pressure of water; head; center of pressure, velocity and discharge through orifices, tubes, nozzles, pipes, hose, weirs, conduits, canals, rivers; meters and measurements; motors, turbines, and water wheels.

Textbook: Hoskin's Hydraulics.

Prerequisite: Eng. Math. 4 and 5, and Phys. 5 and 6, or C.E. 6 and 7.

12. HYDRAULICS LABORATORY. Second semester. Three hours in laboratory. 1 h.

Experiments on flow of water over weirs, through orifices, in open channels and pipes; tests of pumps; reaction and turbine water wheels, etc.; determination of coefficients of friction in hose and pipes. Fee, \$2.00.

Prerequisite: C.E. 7, and to be taken with C.E. 11.

14. ENGINEERING MATERIALS. Second semester. 2 h.

A study is made of the properties and requirements for materials used in engineering construction, the effect of different methods of manufacture upon the quality of the material, and specifications and standard tests for materials.

Textbook: Mills' Materials of Construction.

Prerequisite: Eng. Math. 3 and Phys. 1.

16. TIMBER STRUCTURES. First semester. 1 h.

A study of the joints and fastenings used in timber framing, and the details of timber structures.

Textbook: Jacoby's Structural Details.

Prerequisite: Draw. 1, Eng. Math. 1 and 2, and to be taken with Phys. 1 and 2.

17. **STRUCTURAL DETAILS.** First semester. Six hours in drawing room. 2 h.

Design and detail drawings of beams, columns, roof trusses and trestles of timber and of steel. Fee, \$1.00.

Textbooks: Ketchum's Structural Engineers' Handbook, and Jacoby's Structural Details.

Prerequisite: C.E. 6, and to be taken with C.E. 8.

18. **BRIDGE DETAILS.** Second semester. Three hours in drawing room. 1 h.

The estimation of weight and cost of a steel highway bridge, and the study of bridge details. Fee, \$0.50.

Textbook: Ketchum's Structural Engineers' Handbook.

Prerequisite: C.E. 8 and 17.

20. **ALGEBRAIC AND GRAPHIC STATICS.** Second semester. Two hours lecture, three hours in drawing room. 3 h.

The elements of statics by algebraic and graphic methods, and stresses in simple roof trusses and bridges. Fee, \$1.00.

Textbook: Ketchum's Design of Steel Mill Buildings.

Prerequisite: C.E. 6, 7 and 8.

21. **BRIDGE ANALYSIS.** First semester. One hour lecture, six hours in drawing room. 3 h.

This course includes the calculations of stresses in bridges and girders loaded with uniform and concentrated loads, by algebraic and graphic methods; stresses in portals, pins, and other details preliminary to bridge design. Each student calculates the stresses in, and investigates the efficiencies of the members of a highway bridge. Fee, \$1.00.

Textbook: Ketchum's Design of Highway Bridges.

Prerequisite: C.E. 18 and 20.

22. **BRIDGE DESIGN.** Second semester. Nine hours in drawing room. 3 h.

The detailed design of a railway truss bridge and a railway plate girder bridge, including the making of complete detail drawings and an estimate of weight and cost. Fee, \$2.50.

Textbook: Ketchum's Structural Engineers' Handbook, and notes on bridge design.

Prerequisite: C.E. 21.

23. **ARCHITECTURAL CONSTRUCTION.** Second semester. One hour lecture, three hours in drawing room. 2 h.

A study of the details of architectural construction, including working drawings, perspective, etc. Fee, \$1.00.

Prerequisite: C.E. 16 and 17.

24. **STEEL MILL BUILDINGS.** First semester. Two hours lecture, three hours in drawing room. 3 h.

A study of steel mill buildings, mine structures, grain elevators, ore bins, retaining walls, etc. Fee, \$1.00.

Textbooks: Ketchum's Design of Steel Mill Buildings, Ketchum's Design of Walls, Bins, and Grain Elevators.

Prerequisite: C.E. 18 and 20, and to be taken with C.E. 21.

25. **OFFICE BUILDINGS.** First semester. One hour lecture, three hours in drawing room. 2 h.

The design and details of office buildings of steel and of reinforced concrete. Fee, \$1.00.

Prerequisite: C.E. 23 and to be taken with C.E. 21 and 24.

26. **STRUCTURAL ENGINEERING.** First semester. One hour lecture, three hours in drawing room. 2 h.

This course includes the elements of statics by algebraic and graphic methods, the calculation of stresses in roof trusses, and the design of shops and mill buildings. Fee, \$1.00.

Textbook: Ketchum's Design of Steel Mill Buildings.

Prerequisite: C.E. 8.

27. **MINE AND MILL STRUCTURES.** Second semester. Nine hours in drawing room. 3 h.

A study of the design of head frames, coal tipples, coal washers and breakers, concentrating plants, and other mine structures. Fee, \$1.00.

Textbook: Ketchum's Design of Mine Structures.

Prerequisite: C.E. 21, 24, and 32, and to be taken with C.E. 28.

28. **HIGHER STRUCTURES.** Second semester. One hour lecture, six hours in drawing room. 3 h.

The calculation of stresses in swing bridges, suspension bridges, arch bridges, and cantilever bridges, office building frames, and other statically indeterminate structures. Fee, \$1.00.

Textbook: Johnson, Bryan and Turneaure's Framed Structures, Part II, and notes.

Prerequisite: C.E. 21 and 24, and to be taken with C.E. 22.

31. MASONRY CONSTRUCTION. First semester. Three hours lecture, six hours in drawing room. 5 h.

A study of cements, concrete, retaining walls, dams, arches, and other masonry and reinforced concrete structures. A complete investigation of a reinforced concrete arch is made, using the elastic theory. Considerable time is given to the design of structures. Fee, \$1.00.

Textbooks: Taylor and Thompson's Concrete, Plain and Reinforced, and Baker's Masonry Construction.

Prerequisite: C.E. 8 and 20.

32. REINFORCED CONCRETE STRUCTURES. First semester. One hour lecture, three hours in drawing room. 2 h.

A study is made of the theory of reinforced concrete, and the design of reinforced concrete structures. Fee, \$0.50.

Textbooks: Turneaure and Maurer's Reinforced Concrete, Ketchum's Design of Walls, Bins, and Grain Elevators, and references.

Prerequisite: C.E. 20 and to be taken with C.E. 31.

40. ROADS AND PAVEMENTS. First semester. 1 h.

A detailed study of country roads and city pavements, together with a study of road building materials.

Textbook: Blanchard's Elements of Highway Engineering.

Prerequisite: To be taken with C.E. 1.

41. HIGHWAY ENGINEERING. Second semester. One hour lecture, three hours in laboratory. 2 h.

A detailed study of road building materials, testing, surveys, the design of streets, the construction of modern pavements, road economics, etc. Fee, \$2.00.

Textbook: Blanchard and Drowne's Textbook on Highway Engineering, and notes by the Department.

Prerequisite: C.E. 40 and 42.

42. RAILROAD ENGINEERING. First semester. Two hours lecture, six hours in field and drawing room. 4 h.

Instruction in railroad engineering consists of field practice, office, and classroom work. Field practice consists of the complete location of a line of railroad. In the office the quantities are calculated, and profiles and a complete map are drawn. In the classroom a detailed study is made of the principles of economic location and construction, maintenance of way, and railway structures and appliances. Fee, \$2.00.

Textbooks: Allen's Railroad Curves and Earthwork, Webb's Economics of Railroad Construction, and references.

Prerequisite: C.E. 1, 2 and 4.

43. RAILROAD TERMINALS AND BLOCK SIGNALS. Second semester. 2 h.

This course includes a study of the design of train yards, with special attention given to gravity layouts; methods of switching and of making up trains; special terminal arrangements for large cities, and terminal structures. Some time is also devoted to railway signaling. Fee, \$1.00.

Textbooks: Droege's Freight Terminals and Trains, and Latimer's Signalling.

Prerequisite: C.E. 42.

44. RAILWAY MAINTENANCE. Second semester. 2 h.

Rail and tie renewals, surfacing, manufacture of rails, rail failures, ballast, sidings, crossings, and track accessories, are studied in detail. Some time is given to organization of maintenance forces. Fee, \$1.00.

Textbook: Willard's Maintenance of Way and Structures.

Prerequisite: C.E. 42.

45. RAILWAY OPERATION. First semester. 2 h.

Railway organization, conducting of traffic, train and car service, records and accounts constitute the basis for study in this course. Valuation of railroads is also given some attention.

Textbook: Byer's Railway Operation.

Prerequisite: C.E. 43 and 44.

46. MODERN RAILWAY PROBLEMS. Second semester. 2 h.

Special problems of location, operation and terminal facilities are studied in detail.

Textbook: References and notes.

Prerequisite: C.E. 45.

47. RAILWAY STRUCTURES. Second semester. Nine hours in drawing room. 3 h.

The design of yards, terminals, signal towers, water tanks, coaling stations, and other railway structures. Fee, \$1.00.

Prerequisite: C.E. 21, 24, 31, 32 and 44.

50. BACTERIOLOGY. Second semester. 2 h.

Lectures and laboratory demonstration.

This course covers a study of bacteriological methods and their application in water analysis and sewerage.

Prerequisite: Chem. 1 and 2, and Phys. 1 to 4.

51. WATER SUPPLY. First semester. 3 h.

This course covers the principal features of water works design and construction, including quantity and quality of potable water; choice of supply; the designing of distribution systems, reservoirs, dams, and elevated tanks.

Textbook: Turneaure and Russell's Public Water Supplies.

Prerequisite: C.E. 11 and 50.

52. SEWERAGE. Second semester. 2 h.

This course covers the design and construction of sewerage systems, including separate and combined systems; surveys and plans, determination of size and capacity; construction; and modern methods of sewage disposal.

Textbook: Metcalf and Eddy's American Sewerage Practice, Part I, and references.

Prerequisite: C.E. 11 and 51.

56. CANAL AND RESERVOIR LOCATION. Second semester. One hour lecture, three hours in drawing room. 2 h.

A study is made of special methods of topographic surveys, economic location of canals, considering both cost of construction and of operation, limiting velocities, effects of curvature, diagrams and charts for facilitating this kind of work. Methods of estimating capacity and cost of reservoirs, selection of reservoir and dam sites as governed by geological formations. Drainage and reclamation of wet and irrigated lands. Some practice is given in actual canal location.

Textbooks: Hoyt and Grover's River Discharge, Etcheverry's Irrigation Engineering, Part II, and special articles and notes.

Prerequisite: C.E. 2, 4, and 42, and to be taken with C.E. 11.

57. WATER POWER ENGINEERING. First semester. 2 h.

Stream flow including hydrographs of actual streams; impulse wheels and reaction turbines and the conditions governing their selection; storage and the relation of the reservoir to the power station; economics of power development, its sale and distribution.

Textbook: Mead's Water Power Engineering.

Prerequisite: C.E. 7, 11, and 12, and to be taken with C.E. 31.

58. IRRIGATION ENGINEERING. Second semester. 2 h.

In this course a study is made of the fundamental principles of irrigation engineering, including the design and construction of reservoirs, dams, flumes, canals, and other irrigation works.

Textbook: Etcheverry's Irrigation Engineering, Parts II and III.

Prerequisite: C.E. 11, 31, and 51.

59. IRRIGATION STRUCTURES. Second semester. Nine hours in drawing room. 3 h.

The design of drops, flumes, dams, and other irrigation structures. This course includes lectures, recitations, problems and design. Fee, \$1.00.

Prerequisite: C.E. 21, 24, 31, 32, 57, and to be taken with C.E. 58.

60. ENGINEERING CONTRACTS AND SPECIFICATIONS. Second semester. 2 h. For senior students only.

The law of engineering contracts and specifications. Emphasis is placed on the importance of the clear and definite writing of contracts and specifications, and considerable practice is given the student in the preparation of contracts and specifications.

Textbook: Tucker's Contracts in Engineering.

61. C.E. SEMINAR. Second semester. 1 h. For senior students only.

A study is made of technical periodicals and literature.

ELECTRICAL ENGINEERING

PROFESSOR EVANS, ACTING PROFESSOR MORRILL, ASSISTANT PROFESSOR JENKINS, AND MR. LEONARD, AND MR. MCCORMICK:—

1. DIRECT CURRENT MACHINES. First semester. 3 h.

A study of the electric and magnetic circuits of direct current machines and apparatus, with especial emphasis on the mathematical and graphical development of the principles involved in their theory and operation. The work is supplemented by practical problems throughout the course.

Textbook: Franklin and Esty's Elements of Electrical Engineering, Vol. I.

Prerequisite: Phys. 1 to 4, and 5, and to be taken with Phys. 6 and 8.

2. ALTERNATING CURRENT MACHINES. Second semester. 3 h.

A course in the study of simple alternating current circuits and the operation characteristics of alternating current machinery. Methods of measurement of alternating current are also taken up.

Textbook: Franklin and Esty's Elements of Electrical Engineering, Vol. II.

Prerequisite: E.E. 1 and 21, Phys. 6 and 8, and to be taken with E.E. 22.

3. THEORY OF ALTERNATING CURRENTS. First semester. 4 h.

A study of the theory, regulation, and operation of the various types of alternating current apparatus—single-phase and polyphase generators, synchronous and induction motors, rotary converters, transformers, etc.; the solution of alternating current circuits; the use of vectors and the complex quantity.

Textbook: D. C. and J. P. Jackson's Alternating Currents and Alternating Current Machinery.

Prerequisite: E.E. 2.

4. THEORY OF ALTERNATING CURRENTS. Second semester. 2 h.

A continuation of E.E. 3.

Prerequisite: E.E. 3.

5. TELEPHONE ENGINEERING. Second semester. 2 h.

A study of the electrical principles underlying the transmission of speech, the construction and operation of different types of subscribers' station and central office equipment, underground and aerial lines, automatic and wireless systems, telephone and telegraph engineering problems.

Textbook: McMeen and Miller's Telephony, notes and references.

Prerequisite: E.E. 1 and 21, and to be taken with E.E. 4.

6. TRANSMISSION AND DISTRIBUTION. First semester. 2 h.

A study of the principles of direct and alternating current distribution for light and power purposes, methods of installation and regulation, illustrated by practical application to specific problems, alternating current problems in long distance transmission.

Textbook: Dwight's Transmission Line Formulas, notes and references.

Prerequisite: E.E. 2, and to be taken with E.E. 3.

7. ELECTRIC AND MAGNETIC CIRCUITS. First semester. 1 h.

This course is a very elementary course offered to beginning students to introduce fundamental laws and principles as early as possible. It is largely a problem course familiarizing the student with the laws and principles by drill in concrete examples.

Prerequisite: To be taken with Eng. Math. 4 and Phys. 1 and 3.

8. ILLUMINATION AND PHOTOMETRY. First semester. 2 h.

A study of illuminants with respect to their adaptation to interior and exterior lighting and methods of determining the amount, character, and distribution of their light flux, together with the engineering and economic principles of illumination.

Textbook: Wickenden's Illumination and Photometry, notes and references.

Prerequisite: To be taken with E.E. 1 or 9.

9. ELECTRICAL MACHINERY. First semester. 2 h.

A course, arranged for students who are not specializing in electrical engineering, covering the laws and properties of elec-

tric and magnetic circuits; the theory, construction, and operation of direct current machines and apparatus; the solution of practical problems.

Textbook: Franklin and Esty's Elements of Electrical Engineering, Vol. I.

Prerequisite: Phys. 1 to 4, and to be taken with C.E. 7.

10. ELECTRICAL MACHINERY. Second semester. 3 h.

A continuation of course 9, including also a study of the simpler principles of alternating currents and alternating current machinery.

Prerequisite: E.E. 9.

11. PRIMARY AND SECONDARY BATTERIES. 1 h. Elective.

A course devoted primarily to the study of storage batteries, their use, maintenance, and care, and their application to central station work and power distribution.

Prerequisite: E.E. 1 or 9.

12. E.E. SEMINAR. Second semester. 1 h. For senior students only.

A course in the history of electrical engineering and the biography of prominent engineers; also reviews of current electrical literature.

14. CENTRAL STATION DESIGN. Second semester. Six hours in drawing room. 2 h.

A course treating of the location and design of electric power plants and substations for public service. Complete drawings and details of cost and construction required. Fee, \$1.00.

Notes and references.

Prerequisite: E.E. 3 and M.E. 35.

16. ENGINEERING MATERIALS. Second semester. 2 h.

A study is made of the properties of materials used in engineering construction, the effects of different methods of manufacture upon the quality of material, and specifications and standard tests for materials.

Prerequisite: Eng. Math. 3 and Phys. 1.

18. WAVE ANALYSIS. Second semester. 3 h.

This is an advanced course in the analysis of the complex waves that appear in alternating current circuits. It begins with a mathematical treatment of waves met in actual practice and leads to a mathematical study of simple transient phenomena. This mathematical treatment of waves and transient phenomena is supplemented by work in the laboratory with the oscillograph.

Prerequisite: Eng. Math. 6 and E.E. 3 and 23.

21. DIRECT CURRENT LABORATORY. First semester. Three hours in laboratory. 1 h.

Experimental study of the characteristics of direct current generators and motors, methods of testing, commercial tests, etc. Fee, \$2.00.

Textbook: Wilson's Dynamo Laboratory Outlines, notes and references.

Prerequisite: Phys. 3, 4, and 5, and to be taken with E.E. 1 and Phys. 6 and 8.

22. DIRECT CURRENT LABORATORY. Second semester. Six hours in laboratory. 2 h.

Continuation of course 21. Fee, \$4.00.

Prerequisite: E.E. 21 and to be taken with E.E. 2.

23. ALTERNATING CURRENT LABORATORY. First semester. Six hours in laboratory. 2 h.

Experimental study of the properties and performance of alternating current generators, motors, transformers, rotary converters, methods of alternating current measurements and commercial tests, including complete operation tests. Fee, \$4.00.

Textbook: Wilson's Dynamo Laboratory Outlines, notes and references.

Prerequisite: To be taken with E.E. 3.

24. ALTERNATING CURRENT LABORATORY. Second semester. Three hours in laboratory. 1 h.

Continuation of Course 23 with some high tension tests and transmission experiments. Fee, \$2.00.

Prerequisite: E.E. 3, 6, and 23, and to be taken with E.E. 4.

25. E.E. LABORATORY. Second semester. Three hours in laboratory. 1 h.

A laboratory course in the testing and operation of direct and alternating current machinery, arranged for students not specializing in electrical engineering. Fee, \$2.00.

Textbook: Wilson's Dynamo Laboratory Outlines, notes and references.

Prerequisite: E.E. 9, and to be taken with E.E. 10.

26. PHOTOMETRY LABORATORY. Second semester. Three hours in laboratory. 1 h.

A laboratory course in the determination of the strength and distribution of light of various types of illuminants, practice in the use of different photometers, measurement and representation of illumination. Fee, \$2.00.

Prerequisite: E.E. 8.

31. ELECTRICAL DESIGN. First semester. Six hours in drawing room. 2 h.

Lectures, problems, drawing.

Principles of design of direct and alternating current apparatus. Fee, \$1.00.

Prerequisite: E.E. 1 and 2, and to be taken with E.E. 3.

32. ELECTRICAL DESIGN. Second semester. Six hours in drawing room. 2 h. Elective.

Continuation of Course 31. Fee, \$1.00.

Prerequisite: E.E. 3, and to be taken with E.E. 4.

35. TELEPHONE ENGINEERING. (ADVANCED.) 2 h. Elective.

A course covering the various types of telephone lines and switchboards, methods of testing lines and cables, traffic problems, economics of telephone engineering.

Prerequisite: E.E. 5.

38. ILLUMINATION AND PHOTOMETRY. (ADVANCED.) 2 h. Elective.

The calculation of light flux and illumination. The design and comparison of illuminating systems. Practical tests of existing installations.

Prerequisite: E.E. 8.

40. ELECTRIC RAILWAY ENGINEERING. First semester. 2 h.

A detailed study of the principles of design and installation of electric railway systems, storage battery installations, distribution systems; surface, overhead and underground railways. Principles and operation of various systems of train control, manual and automatic block signals and interlocking systems. Both direct and alternating current systems are covered. Some time is also given to the electrification of railroad terminals.

Prerequisite: E.E. 1 and 2, and to be taken with E.E. 3.

41. ELECTRIC RAILWAY ENGINEERING. Second semester. 2 h.

Continuation of E.E. 40.

Prerequisite: E.E. 40.

42. ELECTRIC RAILWAY DESIGN. Second semester. Six hours in drawing room. 2 h.

The design and location of electric power plants and substations for railway service. Complete drawings and details of cost and construction required. Fee, \$1.00.

Prerequisite: E.E. 40 and M.E. 35.

43. DESIGN OF ELECTRIC RAILWAY EQUIPMENT. First semester. Six hours in drawing room. 2 h.

Lectures, problems, drawing.

This course covers the principles of design of the various types of electric railway motors and control apparatus for direct and alternating current systems. Fee, \$1.00.

Prerequisite: E.E. 1 and 2, and to be taken with E.E. 3.

44. ELECTRIC TRACTION. First semester. 2 h.

A preliminary survey of the principles of design and installation of electric railway systems, principles and operation of the various systems of train control, manual and automatic block signals. Direct and alternating current systems are covered.

Textbook: Harding's Electric Railway Engineering.

Prerequisite: E.E. 1 and 2, and to be taken with E.E. 3.

45. RAILWAY SIGNALING. 2 h. Elective.

A course covering the development and present-day practice in signaling, dispatching, and interlocking with some special applications.

Prerequisite: E.E. 40 and 44.

MECHANICAL ENGINEERING

PROFESSOR HUNTER, ASSISTANT PROFESSOR BAUER, AND MR. CHRISTIAN, MR. MALLORY, MR. GRUNDHOEFFER, AND MR. MOYLE:—

1. KINEMATICS. Either semester. 2 h.

A study of the relative motions of machine parts, instant centers, straight line motions, cams, gearing, belting and intermittent motions.

Textbook: Keown's Mechanism.

Prerequisite: Eng. Math. 1 and 2, and to be taken with Phys. 1 and 3.

2. ENGINEERING MATERIALS. First semester. 1 h.

This course is a study of the manufacture, properties and selection of the materials used in engineering construction.

Textbook: Mill's Materials of Construction.

Prerequisite: Eng. Math. 1 and 2, and to be taken with Phys. 1 and 3.

3. ENGINEERING MATERIALS. Second semester. 1 h.

A continuation of M.E. 2.

Prerequisite: M.E. 2.

4. STEAM ENGINES AND BOILERS. First semester. 4 h.

In this course the various types of boilers and engines are studied as well as their construction and operation.

Textbook: Hutton's Mechanical Engineering of Steam Power Plants.

Prerequisite: Phys. 1 to 4.

6. STEAM ENGINES AND BOILERS. Either semester. 2 h.

A course for electrical, civil, and chemical engineering students, covering the design, construction, operation and maintenance of power plant machinery.

Prerequisite: Phys. 1 to 4.

7. THERMODYNAMICS. Second semester. 3 h.

A brief course in thermodynamics with special reference to the steam engine, the steam turbine and the gas engine.

Prerequisite: M.E. 6, Phys. 6 or C.E. 7.

8. THERMODYNAMICS. Second semester. 2 h.

A study of the mechanical theory of heat, laws of transformation, perfect gases, saturated and superheated vapors, various cycles, heat and refrigeration engines.

Textbook: Ennis' Applied Thermodynamics.

Prerequisite: Phys. 1 to 4, M.E. 4, and Phys. 6, or C.E. 7.

9. THERMODYNAMICS. First semester. 2 h.

A continuation of M.E. 8.

Prerequisite: M.E. 4 and 8.

10. HEATING AND VENTILATION. Second semester. 2 h.

Methods of heating and ventilating are investigated to determine their efficiency and economy. As a part of the course each student is required to design a system of heating for a given building by some standard method, to prepare the necessary specifications and contracts and to make out bills of material.

Textbook: Greene's Heating and Ventilating of Buildings.

Prerequisite: M.E. 1 and 4.

11. LOCOMOTIVES AND AIR BRAKES. Second semester. 2 h.

The mechanics of the locomotive and problems relating to its operation; the engine and valve mechanism, train resistance, rail pressure, slipping, braking, hauling capacity and steam consumption are each discussed with problems.

Textbooks: Henderson's Operations, and McShane's Locomotive, Up to Date.

Prerequisite: M.E. 4 and 32, and C.E. 7 and 8.

12. AUTOMOBILES AND GAS ENGINES. First semester. 2 h.

This course covers the construction and operation of automobiles, gas engines and producer gas plants.

Textbook: Page's The Modern Gasoline Automobile.

Prerequisite: M.E. 8.

13. HYDRAULIC MACHINERY. First semester. 2 h.

This course covers the application of the principles of the dynamics of fluids to the various turbines and other water wheels.

Textbook: Blaine's Hydraulic Machinery.

Prerequisite: C.E. 11, and M.E. 4.

14. WORKS MANAGEMENT. First semester. 2 h.

This course covers the economical design and management of manufacturing property, the capitalization and organization of companies, the organization of labor, the calculation of cost, transmission of power, and sanitation.

Textbook: Ennis' Works Management.

Prerequisite: M.E. 4 and 32.

15. VALVE GEARS. First semester. 1 h.

This course covers a theoretical and practical study of valve gears and link motions.

Textbook: Fessenden's Valve Gears.

Prerequisite: M.E. 4.

16. M.E. SEMINAR. First semester. 1 h. For senior students only.

A study is made of technical periodicals and literature.

17. STEAM TURBINES. Second semester. 3 h.

A study of the design and operation of steam turbines covering the comparison of types, flow of steam and its action on turbine vanes, design of vanes for maximum efficiency, theory of single and multistage turbines, turbine performance, and condensing apparatus.

Textbook: Moyer's Steam Turbines.

Prerequisite: M.E. 8 and 9, or M.E. 6 and 7.

18. COMPRESSED AIR. Second semester. 2 h.

A study of air compressors, the transmission of compressed air and its application to pneumatic machinery.

Textbook: Peele's Compressed Air Plant.

Prerequisite: M.E. 8 and 9.

19. REFRIGERATING MACHINERY. Second semester. 2 h.

A study is made of cold storage, the manufacture of ice and of refrigerating machinery.

Textbook: MacIntire's Mechanical Refrigeration.

Prerequisite: M.E. 8 and 9.

20. RAILWAY OPERATION AND SIGNALS. Second semester. 2 h.

This course covers the operation of trains, handling of freight, and the construction, operation and maintenance of railway signals.

Prerequisite: M.E. 11 and 37.

23. M.E. LABORATORY. Either semester. Three hours in laboratory. 1 h.

Experimental work in calibration of planimeters, water meters and gages; tests of dryness and quality of steam; tests of acidity, specific gravity, chilling and flashing points, and viscosity of oils and other lubricating materials; of impurities in boiler feed water; of flow of air with anemometers and draught gages. Fee, \$2.00.

Textbook: Carpenter and Dietrich's Experimental Engineering is used as a reference.

Prerequisite: M.E. 4, or to be taken with M.E. 6.

24. STEAM ENGINE LABORATORY. First semester. Six hours in laboratory. 2 h.

Tests of boiler flue gases and combustion of fuels, and of efficiency of injectors, engines and boilers; commercial tests of heating and power plants. Fee, \$4.00.

Prerequisite: M.E. 7 or 8, and 23.

25. M.E. LABORATORY. Second semester. Six hours in laboratory. 2 h.

Advanced work in engine testing involving a study of entropy; tests in heating and ventilation. Fee, \$4.00.

Prerequisite: M.E. 9 and 24.

30. MACHINE DRAWING. Either semester. 1 h.

A study of machine elements, such as bolts, screws, keys, couplings and gears. Problems are given requiring simple calculations for strength.

Textbook: Benjamin and Hoffman's Machine Design, supplemented by notes.

Prerequisite: To be taken with M.E. 1.

31. MACHINE DRAWING. Either semester. Six hours in drawing room. 2 h.

This course includes machine sketching and the making of working drawings of simple machine elements designed for strength. Fee, \$1.00.

Textbook: Benjamin and Hoffman's Machine Design, supplemented by notes.

Prerequisite: M.E. 1 and 30, and to be taken with M.E. 3 or E.E. 16.

32. MACHINE DESIGN. First semester. One hour lecture, six hours in drawing room. 3 h.

This course covers advanced problems in kinematics, the design of belting, shafting, bearings and pulleys, and the design of a toggle press, including a set of working drawings and a bill of material. Fee, \$1.00.

Textbook: Benjamin and Hoffman's Machine Design.

Prerequisite: M.E. 3 and 31, C.E. 6, and to be taken with C.E. 7 and 8.

33. MACHINE DESIGN. Second semester. Six hours in drawing room. 2 h.

A continuation of M.E. 32. Fee, \$1.00.

Prerequisite: M.E. 32, C.E. 8, and to be taken with M.E. 34.

34. MECHANICS OF MACHINERY. Second semester. 2 h.

This course covers the application of the principles of theoretical and applied mechanics to such problems in machine design, as transmission of power by belting, ropes and chains; dynamometers; air machinery including fans and blowers; friction in machine parts, and useful applications of friction to clutches and brakes.

Prerequisite: C.E. 8, M.E. 32, and to be taken with M.E. 33.

35. MACHINE DESIGN. Second semester. Six hours in drawing room. 2 h.

This course is similar to M.E. 32 and is arranged for students in electrical and chemical engineering. Fee, \$1.00.

Textbook: Benjamin and Hoffman's Machine Design.

Prerequisite: E.E. 16, M.E. 31, Phys. 5 and 6, or C.E. 6 and 7, and to be taken with C.E. 8.

36. STEAM ENGINE AND BOILER DESIGN. First semester. One hour lecture, nine hours in drawing room. 4 h.

This course covers the design of simple and compound steam engines, and of fire and water tube boilers. Fee, \$1.50.

Prerequisite: M.E. 8, 33, 34, and to be taken with M.E. 9.

37. LOCOMOTIVE DESIGN. First semester. One hour lecture, nine hours in drawing room. 4 h.

This course is similar to M.E. 36 but covers the design of compound locomotive engines and boilers. Fee, \$1.50.

Prerequisite: M.E. 8, 11, 33, 34, and to be taken with M.E. 9.

38. POWER PLANT DESIGN. Second semester. One hour lecture, six hours in drawing room. 3 h.

Each student is required to make a design, with estimates and specifications, of a steam-electric power plant to operate most economically on a given load curve. Fee, \$1.00.

Prerequisite: M.E. 9 and 36.

39. LOCOMOTIVE SHOP AND TERMINAL DESIGN. Second semester. One hour lecture, six hours in drawing room. 3 h.

This course covers the design and equipment of railway shops, round-houses and trackage for the same. Fee, \$1.00.

Prerequisite: M.E. 9, 11, and 37.

40. CHEMICAL ENGINEERING DESIGN. First semester. One hour lecture, six hours in drawing room. 3 h.

This course covers a study of the layout of chemical plants, and the mechanical analysis and design of special classes of machinery used in chemical processes. Fee, \$1.50.

Prerequisite: M.E. 7 and 35, and C.E. 8.

SHOP WORK

1. WOODWORKING. First semester. Six hours in shop. 2 h.

The use of all ordinary woodworking tools in a series of graded exercises, including the use of speed lathe and turning tools. Fee, \$4.00.

2. FORGING. First semester. Six hours in shop. 2 h.

Practical work in the forging and welding of iron and steel, tool dressing, tempering, case hardening and annealing. This course is designed to familiarize the student with the properties and structure of the different irons and steels. Fee, \$4.00.

3. PATTERN MAKING. Second semester. Three hours in shop. 1 h.

Making patterns for iron and brass castings with allowance for draft, shrinkage and finish. Fee, \$2.00.

Prerequisite: Shop 1.

4. **FOUNDRY.** Second semester. Six hours in shop. 2 h.

Practical work in the making of moulds and cores; the care and operation of the cupola furnace and the brass furnace; mixing of metals; and the study of the properties of alloys. Fee, \$4.00.

5. **MACHINE SHOP.** First semester. Nine hours in shop. 3 h.

Practical work in the machining of the different grades of iron, steel, bronze and other metals by means of the lathe, planer, milling machine and drill press. Repairs are made on broken machinery and new machines and machine parts are constructed. Fee, \$6.00.

Prerequisite: M.E. 1, 2, and 30.

6. **MACHINE SHOP AND FOUNDRY.** Second semester. Six hours in shop. 2 h.

This course is for electrical engineering students. The time is divided between machine shop and foundry. Fee, \$4.00.

Prerequisite: M.E. 1, and to be taken with E.E. 16.

GENERAL ENGINEERING DRAWING

ASSISTANT PROFESSOR ALLEN, AND MR. MERRILL:—

1. **MECHANICAL DRAWING.** Either semester. Nine hours in drawing room. 3 h.

Use of instruments, drawing of geometric figures, principles of isometric, cabinet and orthographic projections, making of working drawings, tracing and blue printing. Considerable attention is given to lettering. Fee, \$2.00.

Textbooks: French's Engineering Drawing, and Reinhardt's Lettering.

2. **DESCRIPTIVE GEOMETRY.** Either semester. One hour lecture, six hours in drawing room. 3 h.

The course covers the orthographic projection of points, lines, planes, curved surfaces, etc., in the four angles of projection, development of surfaces. In order to fix the principles, many geometric problems are solved and also a considerable number of practical applications are worked out. Fee, \$2.00.

Textbook: Smith's Practical Descriptive Geometry.

Prerequisite: Draw. 1.

3. **FREE-HAND DRAWING.** First semester. Six hours in drawing room. 2 h. Open to students in all departments.

Principles of free-hand perspective, light and shade, practice drawing from models and casts, and assigned reading. Fee, \$2.00.

ENGINEERING MATHEMATICS

ASSISTANT PROFESSOR SPERRY, AND MR. FLACH, MR. MANN, MR. HITCHCOCK, AND MR. BEVERLY:—

1. **ALGEBRA.** Either semester. 3 h.

A one-semester course covering index laws, algebraic reductions, linear equations, quadratic equations, mathematical induction and the binomial theorem, complex numbers, theorems on roots in theory of equations, logarithms and exponential equations, partial fractions, theorems on limits. Graphs of the quadratic, cubic and quartic equations and of complex numbers are required.

Textbook: Rietz and Crathorne's College Algebra.

2. **TRIGONOMETRY.** Either semester. 2 h.

A one-semester course covering the right triangle, functions of any angle, radian measure, multiple angles, sum and difference formulas, the oblique triangle, inverse functions and trigonometric equations, the right spherical triangle. A knowledge of logarithms is assumed. Graphs of the trigonometric functions are required.

Textbook: Rothrock's Plane and Spherical Trigonometry.

3. **ANALYTICAL GEOMETRY.** Either semester. 5 h.

A one-semester course covering the straight line and circle, transcendental equations, polar equations, transformation of coordinates, conic sections and tangents, parametric equations and loci, empirical equations, the plane and straight line in space, the sphere, cylinder, and quadric surfaces, space coordinates. About fifty graphs and constructions drawn according to exact directions are required in plane analytics.

Textbook: Smith and Gale's New Analytical Geometry.

Prerequisite: Eng. Math. 1 and 2.

4. DIFFERENTIAL CALCULUS. Either semester. 5 h.

A one-semester course covering fundamental differentiation, geometrical and physical applications of the derivative, the differential and its applications, simple integration and solution of equations of motion, curvature, the definite integral and its application to areas, volumes and lengths of curves by single integration.

Textbook: Townsend and Goodenough's Essentials of Calculus.

Prerequisite: Eng. Math. 3.

5. INTEGRAL CALCULUS. Either semester. 5 h.

A one-semester course in continuation of Eng. Math. 4 covering mean value and work integrals, the total derivative and differential, the exact and inexact differential, double and triple integration of areas and volumes, centroids, moments of inertia, hydraulic pressure and discharge problems for simple cases, Maclaurin's and Taylor's theorems and their application to series and approximate formulas, indeterminate forms. A course in ordinary differential equations through the linear equation of the second order with constant coefficients is given at the close.

Textbook: Townsend and Goodenough's Essentials of Calculus, and Preliminary Course in Differential Equations by C. S. Sperry.

Prerequisite: Eng. Math. 4.

6. DIFFERENTIAL EQUATIONS. Second semester. 2 h.

A one-semester course with engineering and physical applications covering equations in two variables; equations of the first order and first and higher degrees, linear equations with constant coefficients, the homogeneous linear equation, exact equations; ordinary equations in more than two variables, partial differential equations of the first and second orders. Elementary hyperbolic functions are included.

Textbook: Murray's Differential Equations, and Elementary Hyperbolic Functions by J. B. Morrill.

Prerequisite: Eng. Math. 4.

7. **GEODESY AND LEAST SQUARES.** Second semester. 3 h.

A course covering the motions of the heavenly bodies, the tides, solar and sidereal time in astronomy, triangulation, base line measurement, the figure of the earth, geodetic levelling, the determination of time, latitude, longitude, and azimuth in geodesy; the theory of errors and its application to the adjustment of triangulation, base lines, and level circuits, the probable errors of computed quantities in least squares. Field observations for time, latitude, and azimuth of sun and stars form part of the work. Fee, \$1.00.

Textbooks: Young's Manual of Astronomy, and Ingram's Geodetic Surveying.

Prerequisite: Eng. Math. 5 and C.E. 2.

ENGINEERING ENGLISH

1. **RHETORIC.** First semester. 3 h.

This is a course in composition arranged with special reference to engineering students.

2. **RHETORIC.** Second semester. 3 h.

This course is a continuation of the first semester course.

3. **ENGINEERING LITERATURE.** Second semester. 2 h.

In this course the student reads and analyzes selections from the best writings in pure science and in engineering. The student is shown the value of clear, concise and accurate diction.

Supplementary Reading. In addition to the reading in this course the student is required to do a prescribed amount of reading during the sophomore and junior years. The list of required books is printed in a supplementary pamphlet.

4. **TECHNICAL WRITING.** Either semester. 2 h. Not given in 1916-1917.

This is an advanced course in composition with particular reference to the needs of the individual student. Particular attention is given to the preparation of engineering reports and to technical journalism.

Prerequisite: English 1 and 2, and junior standing in the College of Engineering.

GRADUATE SCHOOL

FACULTY*

- LIVINGSTON FARRAND, A.M., M.D., LL.D., President of the University.
- J. RAYMOND BRACKETT, A.B., 1875, Bates; Ph.D., 1880, Yale. Dean;
Professor of Comparative and English Literature.
- IRA M. DELONG, A.B., 1878, A.M., 1881, Simpson College; LL.D., 1914,
University of Denver; Professor of Mathematics.
- ALBERT A. REED, LL.B., 1887, Columbia; LL.B., 1894, Colorado;
Professor of Law.
- E. BARBER QUEAL, M.D., 1890, Cincinnati. Professor of Physiology.
- FRED B. R. HELLEMS, A.B., 1893, Toronto; Ph.D., 1898, Chicago; LL.D.,
1913, Colorado College. Professor of Latin.
- CHARLES C. AYER, A.B., 1889, Harvard; Ph.D., 1896, Strasburg.
Professor of Romance Languages.
- GEORGE NORLIN, A.B., 1893, Hastings College; Ph.D., 1899, Chicago.
Professor of Greek.
- FRANCIS RAMALEY, B.S., 1895, Ph.D., 1899, Minnesota. Professor of
Biology.
- MELANCHTHON F. LIBBY, A.B., 1890, Toronto; Ph.D., 1900, Clark.
Professor of Philosophy.
- JOHN BERNARD EKELEY, A.B., 1891, A.M., 1893, Colgate; Ph.D., 1902,
University of Freiburg in Baden; Sc.D., 1911, Colgate. Professor
of Chemistry.
- RUSSELL D. GEORGE, A.B., 1897, A.M., 1898, McMaster. Professor of
Geology.
- JOHN D. FLEMING, A.B., 1875, Central University; LL.B., 1879, Louis-
ville; LL.D., 1910, Central University. Charles Inglis Thomson
Professor of Law.
- MILO S. KETCHUM, B.S., 1895, C.E., 1900, Illinois. Professor of Civil
Engineering.
- †HERBERT S. EVANS, B.S., 1898, E.E., 1900, Nebraska. Professor of
Electrical Engineering.

* This Faculty is made up of Professors and Instructors of the various
Faculties of the University who offer work in the Graduate School.

† On leave of absence, 1915-1916.

- JOHN A. HUNTER, B.S., 1890, M.E., 1896, Pennsylvania State College. Professor of Mechanical Engineering.
- THEODORE D. A. COCKERELL, Sc.D., 1913, Colorado College. Professor of Zoology.
- GEORGE M. CHADWICK. Professor of Music.
- JAMES F. WILLARD, B.S., 1898, Ph.D., 1902, Pennsylvania. Professor of History.
- OLIVER C. LESTER, A.B., 1897, Central College, Missouri; A.M., 1902, Ph.D., 1904, Yale. Professor of Physics.
- FRANK E. THOMPSON, A.B., 1901, Stanford. Professor of Education.
- ROSS C. WHITMAN, A.B., 1894, M.D., 1899, Michigan. Professor of Pathology.
- JUNIUS HENDERSON, A.B., 1908, Colorado. Professor of Natural History.
- JOHN S. McLUCAS, A.B., 1893, South Carolina College; A.B., 1895, A.M., 1899, Harvard. Professor of English.
- GRACE FLEMING VAN SWERINGEN, B.L., 1893, Cornell; Ph.D., 1904, University of Berlin. Professor of Germanic Languages.
- ALVIN R. PEEBLES, M.D., 1906, Michigan. Professor of Preventive and Experimental Medicine.
- CLOUGH T. BURNETT, M.D., 1908, Michigan. Professor of Bacteriology.
- MILO G. DERHAM, A.B., 1892, Cornell; Ph.D., 1904, Colorado. Professor of Latin.
- LAWRENCE W. COLE, A.B., 1899, Oklahoma; A.M., 1904, Ph.D., 1910, Harvard. Professor of Psychology.
- *JAMES C. TODD, Ph.B., 1897, Wooster; M.D., 1900, Pennsylvania. Professor of Clinical Pathology.
- CARBON GILLASPIE, M.D., 1905, Colorado. Professor of Anatomy.
- HOMER C. WASHBURN, Ph.C., 1902, B.S. (Phar.), 1904, Michigan. Professor of Pharmacy.
- LORAN D. OSBORN, A.B., 1892, Michigan; Ph.D., 1900, Chicago. Professor of Sociology.
- FREDERICK A. BUSHEE, B.L., 1894, Dartmouth; A.M., 1898, Ph.D., 1902, Harvard. Professor of Economics and Sociology.
- RALPH D. CRAWFORD, A.B., 1905, A.M., 1907, Colorado; Ph.D., 1913, Yale. Professor of Mineralogy and Petrology.
- HARRY A. CURTIS, B.S. (Ch.E.), 1908, A.M., 1910, Colorado; Ph.D., 1914, Wisconsin. Professor of Physical Chemistry.

* On leave of absence, first semester 1915-1916.

- JOSEPH B. MORRILL, B.S. (E.E.), 1910; E.E., 1914, Colorado. Acting Professor of Electrical Engineering.
- FRED G. FOLSOM, A.B., 1895, Dartmouth; LL.B., 1899, Colorado. Professor of Law.
- WILLIAM R. ARTHUR, A.B., 1899, Washburn; LL.B., 1908, Northwestern. Professor of Law.
- DAVID R. JENKINS, B.S. (E.E.), 1904, E.E., 1907, Colorado. Assistant Professor of Electrical Engineering.
- S. ANTOINETTE BIGELOW, A.B., 1893, Wellesley; A.M., 1910, Columbia. Assistant Professor of Literature.
- WHITNEY C. HUNTINGTON, B.S. (C.E.), 1910, C.E., 1912, M.S., 1913; Colorado. Assistant Professor of Civil Engineering.
- HOWARD E. PHELPS, B.S. (C.E.), 1907, Colorado. Assistant Professor of Civil Engineering.
- MAX M. ELLIS, A.B., 1907, A.M., 1908, Ph.D., 1911, Indiana; Sc.D., 1914, Vincennes. Assistant Professor of Biology.
- CARL C. ECKHARDT, Ph.B., 1902, Ohio State University; A.M., 1904, Michigan; Ph.D., 1908, Cornell. Assistant Professor of History.
- FRANK S. BAUER, B.S. (M.E.), 1911, Illinois; M.E., 1915, Colorado. Assistant Professor of Mechanical Engineering.
- PHILIP G. WORCESTER, A.B., 1909, A.M., 1911, Colorado. Assistant Professor of Geology.
- WILLIAM F. BAUR, Ph.B., 1893, Michigan. Assistant Professor of Germanic Languages.
- FRANK G. ALLEN, B.S. (M.E.), 1901, Illinois. Assistant Professor of Engineering Drawing.
- CHARLES S. SPERRY, A.B., B.S. (C.E.), 1911, C.E., 1915, Colorado. Acting Assistant Professor of Engineering Mathematics.
- ARNOLD J. LIEN, A.B., 1908, A.M., 1909, Minnesota; Ph.D., 1913, Columbia. Assistant Professor of Political Science.
- JAY W. WOODROW, A.B., 1907, Drake; A.B., 1910, Oxford; Ph.D., 1913, Yale. Assistant Professor of Physics.
- ROBERT C. LEWIS, Ph.B., 1909, Ph.D., 1912, Yale. Assistant Professor of Physiology and Physiological Chemistry.
- CHARLES F. POE, A.B., A.M., 1911, Ph.C., B.S. (Phar.), 1914, Colorado. Instructor in Chemistry.
- PAUL M. DEAN, A.B., 1908, A.M., 1911, Colorado. Instructor in Chemistry.

- LYNN R. LEONARD, B.S. (E.E.), 1912, M.S., 1913, E.E., 1915, Colorado. Instructor in Electrical Engineering.
- IVAN C. CRAWFORD, B.S. (C.E.), 1912, C.E., 1915, Colorado. Instructor in Civil Engineering.
- FRANCIS WOLLE, A.B., 1911, Pennsylvania. Instructor in English Literature.
- WILLIAM J. CHRISTIAN, B.S. (M.E.), 1913, Colorado. Instructor in Mechanical Engineering.
- CHARLES M. MCCORMICK, B.S. (E.E.), 1907, E.E., 1912, Iowa State College. Instructor in Electrical Engineering.
- THOMAS F. WALKER, M.D., 1912, Colorado. Instructor in Histology and Embryology.
- WALTER F. MALLORY, B.S. (M.E.), 1914, Colorado. Instructor in Mechanical Engineering.
- DOROTHY M. BURTON, A.B., 1914, Colorado. Instructor in English Literature.
- EDNA REYNOLDS, A.B., 1912, A.M., 1913, Colorado. Instructor in Psychology.
- MAUD E. CRAIG, A.B., 1912, A.M., 1914, Colorado. Instructor in Latin and in Greek.
- EDWIN B. PLACE, A.B., 1913, Colorado. Instructor in Romance Languages.
- NATHAN ALTSHILLER, C.Sc., 1909, Sc.D., 1911, Ghent. Instructor in Mathematics.
- W. SCOTT BOYCE, A.B., 1903, Wake Forest; A.M., 1907, Chicago. Instructor in Economics.

GRADUATE COMMITTEE

J. RAYMOND BRACKETT, Dean.

FRANCIS RAMALEY, Secretary.

MILO S. KETCHUM.

MILO G. DERHAM.

ARNOLD J. LIEN.

GENERAL STATEMENT

ADMISSION

A graduate of the University of Colorado will be admitted to the Graduate School upon application, without paying a matriculation fee. A graduate of any college or scientific school of equal rank with the University of Colorado will be admitted upon presentation of a certificate of graduation and payment of the matriculation fee of ten dollars. A student from another institution should first submit his credits to the Registrar for rating.

Only a graduate or a student who has substantially completed the requirements for the bachelor's degree will be enrolled in the Graduate School. A graduate student who elects courses exclusively of undergraduate rank will not be enrolled in the Graduate School.

Admission to the Graduate School will not be taken as equivalent to candidacy for a degree. A graduate student who wishes to become a candidate for a degree must make special application.

A major subject of study should be selected by each graduate student in conference with the Dean of the Graduate School, and the minor subjects in conference with the professor in charge of the major subject.

ADVANCED STANDING AND RESIDENCE

Credit may be given by the Graduate Committee for work done in other universities, but at least one full year of residence at the University of Colorado will be required for each higher degree. For residence requirement in Summer Session, see page 180. Credit will not be granted for work done *in absentia*, except to graduates of the University of Colorado who are candidates for the degree of Engineer. A year's residence means that a student is located at the University not later than the first day of October, and gives his undivided attention to academic work, completing not less than the equivalent of thirty semester hours, that is, fifteen hours of class work for each semester.

THE DEGREE MASTER OF ARTS

APPLICATION FOR ADMISSION TO CANDIDACY.—A student who has been admitted to the Graduate School, and who wishes to become a

candidate for the degree Master of Arts, should make application as soon as practicable, and in any case, not later than thirty days before the end of the first semester. The application for candidacy should include a program of studies leading to the degree, a list of undergraduate studies in the same field, a statement of any original work already accomplished, and an enumeration of honors and degrees. Application blanks will be furnished at the office of the Dean of the Graduate School. An applicant's instructors make recommendations to the Graduate Committee as soon as practicable, and in any case, not later than the end of the first semester; and the Graduate Committee, after consideration of the recommendations, decides upon the application for candidacy, as soon as may be, and in any case, not later than the first week of the second semester.

REQUIREMENTS FOR THE MASTER OF ARTS DEGREE.—The minimum requirement for the degree Master of Arts is one full year devoted to study, equivalent to not less than thirty semester hours, that is, fifteen hours of class work for each semester; the work on the thesis is included in the thirty hours. Studies leading to the degree Master of Arts must be divided between two subjects, known as the major subject and the minor subject. In special cases a second minor subject is permitted. The first minor subject must consist of study equivalent to at least six semester hours and must lie in a different department from the major subject, but must be approved by the professor in charge of the major subject. A department is understood to mean such a division of studies as is under the charge of a head professor. A thesis, which counts for not less than four nor more than eight semester hours, must be written under the direction of the professor in charge of the major subject, and be finished and submitted for his approval not later than thirty days before the time at which the degree is to be conferred. When the thesis is accepted, printed or typewritten copies bound, to the number of two or more, at the discretion of the major professor, shall be placed in the University Library before the diploma is delivered. Such knowledge of ancient and modern languages as may be deemed necessary by the professor in charge of the major subject is required of a candidate. The written examinations of each semester shall be taken upon such studies as are pursued in class, and at the end of the year such additional examination upon other sub-

jects, upon the thesis, and upon the first semester's work, as each instructor may require. If courses have been taken during former years, however, there shall be an examination at the end covering such courses as are not taken in the final year.

ENGINEERING DEGREES

MASTER OF SCIENCE.—A candidate for the degree Master of Science must have previously received the degree B.S. in Engineering from this University; or, if he was graduated elsewhere, he must satisfy the faculty that he possesses equivalent attainments. He must choose a major subject to occupy one-half his time from the graduate courses offered in the line in which he received his bachelor's degree. Study and residence for not less than one year and a thesis on an approved subject are required. A year's work includes thirty hours, of which not less than six hours should be given to the thesis. The thesis in form shall comply with the specifications adopted by the faculty of the College of Engineering for the bachelor's thesis. Two bound copies of the thesis shall be deposited with the University Library before the diploma is conferred. The committee in charge of the work of each candidate shall consist of the major professor and the heads of the departments of Civil, Electrical and Mechanical Engineering.

MASTER OF SCIENCE IN SANITARY ENGINEERING.—A candidate for the degree Master of Science in Sanitary Engineering must have previously received the degree B. S. in Engineering from this University; or, if he was graduated elsewhere, he must satisfy the faculty that he possesses equivalent attainments. In his previous work he must have included courses in Elementary Bacteriology, Water Supply, Sewerage and Structural Engineering. Study and residence for not less than one year and a thesis on an approved subject are required. A year's work includes thirty hours, of which not less than six hours should be given to the thesis. The thesis in form shall comply with the specifications adopted by the faculty of the College of Engineering for the bachelor's thesis. Two bound copies of the thesis shall be deposited with the University Library before the diploma is conferred.

ENGINEER.—A candidate for the degree Civil Engineer, Electrical Engineer or Mechanical Engineer must have previously received the degree B. S. in Engineering from this University; or if

he was graduated elsewhere, he must satisfy the faculty that he possesses equivalent attainments. He must choose major subjects equal to not less than twenty semester hours in the same course as that in which he received his undergraduate engineering degree, and in addition must choose minor subjects not to exceed ten semester hours from the same or other engineering courses. A thesis on a topic to be approved by his major professor is required in addition to the thirty hours' work covered by the major and minor subjects. The thesis shall be equivalent to not less than six semester hours' credit. A further requirement is that the candidate must have had responsible charge of engineering work for at least one year. Residence at the University for at least one year is required of all resident graduate students. The academic work of graduates of this University need not be done in residence. A non-resident candidate must be registered for at least two years before coming up for his degree. The thesis and all work required for the degree must be completed at least one month before the annual commencement at which the candidate expects to receive his degree. The thesis in form shall comply with the specifications adopted by the faculty of the College of Engineering for the bachelor's thesis. Two bound copies of the thesis shall be deposited with the University Library before the diploma is conferred. The candidate shall be approved at the time of registration and the final examination shall be given by a committee composed of the heads of the Civil, Electrical and Mechanical Engineering Departments. The report of the examining committee is transmitted to the Dean of the Graduate School.

MEDICAL DEGREES

MASTER OF SCIENCE IN PUBLIC HEALTH.—A candidate for the degree Master of Science in Public Health must have received the degree Bachelor of Arts or the degree Doctor of Medicine in an approved institution, must have spent subsequently at least one year in this University in the study of Public Health problems and administration, and must have presented a satisfactory thesis. The course of study must be approved during the first week of the academic year. A specified course is recommended, but this will be altered to meet particular needs.

DOCTOR OF PUBLIC HEALTH.—A candidate for the degree Doctor of Public Health must have spent at least two years in graduate

study of Public Health problems and administration, and must have presented a satisfactory thesis. The course of study must be approved during the first week of the academic year. In general, the work of the first year is the same as that required for the degree Master of Science in Public Health. The second year is spent largely in the field in actual Public Health administration and in research upon an approved topic. Advanced standing may be granted to students who have completed in other approved universities work similar to that required here for the first year. The last year of the course must be taken in residence in this University.

DOCTOR OF OPHTHALMOLOGY.—A candidate for the degree Doctor of Ophthalmology must be a graduate of a standard medical school and must have the preliminary education in mathematics and optics. In order to receive the degree D.Oph., he must have done at least three years of graduate work with Ophthalmology as a major subject. One or more courses in Ophthalmology must be completed in the University of Colorado. Each candidate must pass an examination, written, oral, microscopical, and clinical; and must submit an original thesis and stand examination thereon. Six weeks residence in Denver is required.

THE DEGREE DOCTOR OF PHILOSOPHY

APPLICATION FOR ADMISSION TO CANDIDACY.—A student who has been admitted to the Graduate School, and who wishes to become a candidate for the degree Doctor of Philosophy, may make application at any time after admission, provided that he shall not apply later than eight months before the time at which he expects to receive the degree. The form of application is the same as for Master of Arts degree.

REQUIREMENTS FOR THE DEGREE DOCTOR OF PHILOSOPHY.—A reading knowledge of both French and German, with special reference to the candidate's field of study, shall be required before admission to candidacy, and upon this requirement the applicant must satisfy a committee consisting of the heads of the French and the German departments and of the professor in charge of the major subject. A knowledge of other languages may also be required, if demanded by the professor in charge of the major subject. The minimum requirement for the degree Doctor of Philosophy is not less than three full years devoted to study, equivalent to not less than sixty

semester hours, and to the preparation of a thesis. But the degree shall be granted not for the completion of any specified period of residence or number of hours' study, but for high attainments in general, and marked ability in a special field, including particularly power in original investigation proved by a thesis. Part of the time required may be spent in some other university of approved standing, provided at least one year is spent in the University of Colorado. Studies leading to the degree Doctor of Philosophy must be divided into three groups, known as the major subject, the first minor subject, and the second minor subject. The first minor subject shall consist of the equivalent of at least fifteen semester hours, and the second of eight. Each subject shall be in a different department from the others. A thesis, showing power in original investigation, shall be written upon some subject approved by a committee consisting of the heads of the three departments concerned, and shall be finished and submitted in typewritten form at least sixty days before the time at which the degree is to be conferred, and must be satisfactory to the committee of three above mentioned. When the thesis is accepted, printed or typewritten copies, bound, to the number of three or more at the discretion of the committee, shall be placed in the University Library before the diploma is delivered. The regular written examinations on such subjects as are taken in class may be required at the discretion of each instructor, but, in any case, a preliminary and a final examination are required. The preliminary examination is oral, or oral and written, the oral examination being conducted by all instructors concerned, in the presence of a committee consisting of the heads of the departments in which the major and minor subjects lie, and is held at least six months before the time at which the degree is to be conferred. The final examination is oral, and is conducted in the presence of a committee consisting of the heads of the departments interested and two other professors appointed by the Dean of the Graduate School, and in the presence of visitors. The report of the examining committee is transmitted to the Dean of the Graduate School.

SUMMER SESSION WORK FOR DEGREE MASTER OF ARTS

RULES AND REQUIREMENTS.—In general, the rules and requirements for the degree Master of Arts in the regular sessions of the University apply to students working toward that degree in the Summer Session, except the rules as to residence, registration, appli-

cation for candidacy, and examination; the requirements as to residence may be met by attending four full Summer Sessions. A student who intends to enter the Summer Session and who wishes to work toward the degree Master of Arts, should communicate early in the Spring with the resident professor in charge of the major subject, and should consult with the instructor in charge of the major subject in the Summer Session before registering for courses. He should make application for admission to the Graduate School by September following the first Summer Session attended and should make application for candidacy by September preceding the Summer Session in which he intends to finish his required work. A graduate of another university must pay the matriculation fee of ten dollars by the beginning of the second Summer Session; but he shall pay the matriculation fee only once, and shall be exempt from all other fees except the Summer Session fees and the diploma fee. A candidate for the Master's degree takes the regular examinations upon work done in class, together with such supplementary examinations, as his instructors may require, and on completion of the required work, he shall take a final examination covering all courses of study pursued and his thesis. This final examination is oral, or oral and written, the oral examination being conducted in the presence of a committee, two members of which shall be regular professors of the faculty of the University of Colorado.

WORK, PARTLY IN ABSENTIA, FOR DEGREE MASTER OF ARTS

By written consent of the major department concerned, filed with the Dean of the Graduate School, any person eligible to candidacy for a second degree, who has done satisfactory graduate work during one Summer Session of the University (except as noted below), may be admitted to candidacy for a Master's Degree upon the following terms: The candidate must conform to all of the regulations for candidates for the Master's Degree with exception of the requirement of residence for one year. During two or more successive Summer Sessions, in addition to the one above named, the candidate must pursue a course of advanced study arranged and approved by the department of the University in which his major subject is to be taken. During the included two years between the first and third of these Summer Sessions, while not in residence at the University, he must pursue through the Extension Division work in continuation of, or collateral to, this major subject,

to the extent of twelve of the thirty hours required for the Master's Degree. The requirement of attendance at a Summer Session before graduate work is permitted under this plan may be waived, with the consent of the departments involved, in the case of alumni of this University or of Extension classes conducted by members of the University faculty. This does not excuse the candidate from residence at the University during at least three Summer Sessions.

ORDER OF DESCRIPTION OF COURSES

Few of the courses outlined below are available in any one year, but each department usually offers one or more every year that may be taken as a minor for the Master's Degree. Courses not scheduled here may be arranged to meet needs of candidates of ability. Students intending to take courses toward the degree Doctor of Philosophy or toward a major for Master of Arts will find advantage in consulting with the Dean and the head of the department concerned as early as the middle of the previous semester.

Biology.	Literature, Comparative and
Chemistry.	English.
Civil Engineering.	Mathematics.
Education.	Mechanical Engineering.
Electrical Engineering.	Music.
English Language.	Ophthalmology.
Geology, Mineralogy and	Philosophy.
Geography.	Physics.
Germanic Languages and	Psychology.
Literatures.	Public Health.
Greek Language and Literature.	Romance Languages and
History.	Literatures.
Latin Language and Literature.	Social Science.
Law.	

DESCRIPTION OF COURSES*

BIOLOGY

I. GENERAL BIOLOGY AND SANITARY SCIENCE

PROFESSOR RAMALEY AND ASSISTANT PROFESSOR ELLIS:—

3. PRINCIPLES OF HEREDITY.
5. PUBLIC HEALTH PROBLEMS.

For Graduates Only.

7. SPECIAL PROBLEMS.

Heredity, History of Biology, Biological Statistics.

II. BOTANY

PROFESSOR RAMALEY:—

- 1-2. GENERAL BOTANY.

Open as a minor.

7. SPECIAL PLANT MORPHOLOGY.
8. ECOLOGY AND TAXONOMY.

Summer Course.

For Graduates Only.

10. SPECIAL PROBLEMS.

Plant Anatomy, Ecology, Phytogeography, Agrostology.

Research work in ecology is especially provided at the Summer Mountain Laboratory at Tolland, Colorado. Prospective students should consult the Summer Session Announcement and communicate with Professor Francis Ramaley, Boulder, Colorado, who is in charge.

III. ZOOLOGY

PROFESSOR COCKERELL AND ASSISTANT PROFESSOR ELLIS:—

- 1-2. GENERAL ZOOLOGY.

Open as a minor.

* The graduate courses that may be elected by undergraduates also are listed under the same numbers as in the College of Liberal Arts, see page 60. The courses for graduates only are described here.

3-4. PRINCIPLES OF ZOOLOGY.

May be applied toward a minor in special cases.

6. PLANKTONOLOGY.

7-8. CYTOLOGY.

9-10. COMPARATIVE ANATOMY OF VERTEBRATES.

13-14. ICHTHYOLOGY.

15-16. ENTOMOLOGY.

For Graduates Only.

17. SPECIAL PROBLEMS.

Taxonomy of Hymenoptera, Coccidae (scale insects), Paleontomology, Ichthyology, Protozoology, Pond and Stream Zoology, and others as opportunity offers.

CHEMISTRY

PROFESSORS EKELEY AND CURTIS, AND MR. POE, MR. DEAN,
AND MR. BOUTON:—

3-4. QUALITATIVE ANALYSIS.

5a and 5b. QUANTITATIVE ANALYSIS.

Gravimetric.

6. QUANTITATIVE ANALYSIS.

Volumetric.

7. ANALYSIS OF IRON AND STEEL.

8. SANITARY WATER ANALYSIS.

9. MINERAL WATER ANALYSIS.

10. ORE ANALYSIS.

11. GAS ANALYSIS.

12. ORGANIC CHEMISTRY.

Lectures.

14. LABORATORY PRACTICE IN ORGANIC PREPARATIONS.

15. ULTIMATE ANALYSIS OF ORGANIC COMPOUNDS.

16. FOOD ANALYSIS.

17. PHYSICAL CHEMISTRY.

Lectures.

18. PHYSICAL CHEMISTRY.

Laboratory.

19. ELECTROCHEMICAL ANALYSIS.

20. PHYSIOLOGICAL CHEMISTRY.

Lectures.

21. PHYSIOLOGICAL CHEMISTRY.

Laboratory.

22. INDUSTRIAL CHEMISTRY.
23. DRUG ASSAYING.
24. HISTORY OF CHEMISTRY.

NOTE—Candidates for the Master's degree, taking chemistry as a major, must have completed courses 1, 2, 3, 4, 5a, 5b, 6, 10, 12, 14, 17, and 18. Courses from Course 6 on may be counted toward the thirty-hour requirement, in case they have not already been counted toward the bachelor's degree; in such cases, special courses in chemistry may be arranged for.

CIVIL ENGINEERING

PROFESSOR KETCHUM, ASSISTANT PROFESSORS HUNTINGTON AND
PHELPS:—

For Graduates Only.

101. RAILWAY LOCATION AND CONSTRUCTION.
102. YARDS AND TERMINALS.
103. SIGNAL ENGINEERING.
104. RAILWAY OPERATION, MANAGEMENT, AND VALUATION.
105. TUNNELS AND CANALS.
110. ADVANCED BRIDGE DESIGN.
111. SWING AND MOVABLE BRIDGES.
112. METALLIC ARCHES.
113. INDETERMINATE STRUCTURES.
114. STEEL OFFICE BUILDING CONSTRUCTION.
115. STEEL MINE AND MILL STRUCTURES.
120. REINFORCED CONCRETE CONSTRUCTION.
130. GENERAL WATER WORKS CONSTRUCTION AND MANAGEMENT.
131. TANKS, STANDPIPES AND RESERVOIRS.
140. SEWAGE PURIFICATION AND DISPOSAL WORKS.
141. GENERAL SEWERAGE DESIGN AND CONSTRUCTION.
150. IRRIGATION ENGINEERING STRUCTURES.
151. IRRIGATION ENGINEERING STUDIES.
152. DAMS AND RESERVOIRS FOR IRRIGATION.
160. HYDRAULICS.
161. ADVANCED APPLIED MECHANICS.

EDUCATION

PROFESSORS THOMPSON, COLE, AND LIBBY:—

- 2.* COMPARATIVE PSYCHOLOGY.
- 3.* ADVANCED PSYCHOLOGY.
- 4.* PATHOLOGICAL PSYCHOLOGY.
- 5-6.* EXPERIMENTAL PSYCHOLOGY.
- 7.* EDUCATIONAL PSYCHOLOGY.
- 10.* MENTAL TESTS.
- 7. HISTORY AND PHILOSOPHY OF EDUCATION.
- 8. HISTORY AND PHILOSOPHY OF MODERN EDUCATION.
- 9. COMPARATIVE STUDY OF SCHOOL SYSTEMS.
- 10. ANTHROPOLOGY.
- 11. ETHNOLOGY.
- 12. SOCIAL PSYCHOLOGY (PSYCHOLOGY 11).
- 13. EDUCATION AND SOCIETY.
- 14. PRACTICUM IN EDUCATION.
- 15. SEMINAR IN EDUCATION.

For Graduates Only.

- 14.* ADVANCED EXPERIMENTAL PSYCHOLOGY.

ELECTRICAL ENGINEERING

PROFESSOR EVANS, ACTING PROFESSOR MORRILL, ASSISTANT
PROFESSOR JENKINS, MR. LEONARD, AND MR. MCCORMICK:—*For Graduates Only.*

- 101. THEORY OF ALTERNATING CURRENTS.
- 102. ANALYSIS AND DESIGN OF ALTERNATING CURRENT APPARATUS.
- 103. ANALYSIS AND DESIGN OF DIRECT CURRENT APPARATUS.
- 104. SWITCHBOARD DESIGN AND CONSTRUCTION.
- 105. THE TESTING OF ELECTRICAL MACHINERY.
- 106. ELECTRICAL ENGINEERING RESEARCH.
- 107. TELEPHONES AND TELEGRAPH.
- 108. ELECTRICAL TRANSMISSION OF POWER.
- 109. ELECTRIC LIGHT AND POWER PLANTS.
- 110. ELECTRO-METALLURGICAL INDUSTRIES.
- 111. ADVANCED ELECTRICAL ENGINEERING LABORATORY.
- 112. ILLUMINATING ENGINEERING.

* These numbers refer to courses in the Department of Psychology.

ENGLISH LANGUAGE

PROFESSOR McLUCAS:—

- 9-10. ANGLO-SAXON.
- 11. MIDDLE ENGLISH.
- 12. CHAUCER.
- 13. SHAKESPEARE.
- 14. PRE-SHAKESPEAREAN DRAMA.

GEOLOGY, MINERALOGY, AND GEOGRAPHY

PROFESSORS GEORGE, HENDERSON, AND CRAWFORD, AND ASSIST-
ANT PROFESSOR WORCESTER:—

I. GEOLOGY

- 5-6. ECONOMIC GEOLOGY.
- 7-8. ADVANCED GEOLOGY.
- 9-10. GEOLOGY OF COLORADO.
- 11. GEOLOGIC SURVEYING.
- 12. GEOLOGIC MATERIALS.
- 13. GEOLOGY CULTURE COURSE.
- 14-15. PALEONTOLOGY.

For Graduates Only.

- 16-17. RESEARCH GEOLOGY. One or both semesters.

The work will be chiefly individual, and will depend largely on the preparation of the student. The vicinity of Boulder, and the State as a whole, offer a wide range of problems for research. The credit allowed will depend upon the time given to the work and the character of the results obtained.

NOTE—The establishment of the State Geological Survey gives very exceptional opportunities to a limited number of advanced students in geology.

II. MINERALOGY AND PETROLOGY

- 3-4. ADVANCED MINERALOGY.
- 5. FIRE ASSAYING.
- 6. ADVANCED CRYSTALLOGRAPHY.
- 7-8. OPTICAL MINERALOGY, PETROGRAPHY.

For Graduates Only.

- 9-10. PETROLOGY. Throughout the year. 2 or 3 h. each semester.

An advanced course which includes the microscopic study of rocks from typical districts, reading of petrologic literature, and one weekly period for lectures and reports.

- 11-12. CHEMICAL MINERALOGY. Both semesters.

Either quantitative-analytic mineralogy or the investigation of special problems involving laboratory and library research may be undertaken by students who have had adequate preparation.

III. GEOGRAPHY

3. ADVANCED PHYSIOGRAPHY.

GERMANIC LANGUAGES AND LITERATURES

PROFESSOR VAN SWERINGEN AND ASSISTANT PROFESSOR BAUR:—

9. THE GERMAN DRAMA OF THE NINETEENTH CENTURY.
10. ADVANCED COMPOSITION.
12. GOETHE'S FAUST: PARTS I AND II.
13. STUDIES IN THE HISTORY OF THE GERMAN NOVEL.
14. THE GERMAN NOVELLE.
17. THE HISTORY OF GERMAN LITERATURE FROM THE EARLIEST TIMES TO THE TIME OF KLOPSTOCK.
18. THE HISTORY OF GERMAN LITERATURE FROM THE TIME OF KLOPSTOCK TO THE PRESENT.
19. GERMANIC HERO-SAGAS.
20. GERMANIC MYTHOLOGY.

For Graduates Only.

21. DEUTSCHE AUFSÄTZE. 2 h.
22. DEUTSCHE PHONETIK UND AUSSPRACHE. 2 h.
23. GOTHIC. One semester. 3 h.

Phonology and inflections of Gothic; relation of Gothic to German and English; reading of extracts in Braune's *Gotische Grammatik*.

24. OLD HIGH GERMAN. Two semesters. 3 h.

Braune's *Althochdeutsche Grammatik*, and *Althochdeutsches Lesebuch*.

25. MIDDLE HIGH GERMAN. Two semesters. 2 h.
Paul's *Mittelhochdeutsche Grammatik*; reading of Hartman von Aue's *Der arme Heinrich*.
26. OLD ICELANDIC. Two semesters. 3 h.
Phonology and inflection of Old Icelandic, from Noreen's *Altisländische and Altnorwegische Grammatik*.
Reading of Heusler's *Zwei Isländer-Geschichten*.
27. THE EDDA. Both semesters. 3 h.
Gering's Edition of Hildebrand's *Edda Lieder*.
28. EINFÜHRUNG IN DAS STUDIUM DER GERMANISCHEN SPRACHEN. 3 h.
29. GOETHE SEMINAR. 2 h.

GREEK LANGUAGE AND LITERATURE

PROFESSORS NORLIN AND HELLEMS:—

8. PLATO.
Interpretation of the *Republic* with lectures on Platonism.
9. COMEDY.
Aristophanes' Clouds and Frogs.
10. GREEK HISTORIANS.
Herodotus and Thucydides.
11. PASTORAL POETRY.
Theocritus, Bion, and Moschus.
12. LYRIC POETS.
Early lyric poets with introduction to *Pindar and Bacchylides*.
13. ADVANCED PROSE COMPOSITION.

For Graduates Only.

18. THE TRAGEDIES OF AESCHYLUS.
19. ARISTOTLE'S POETICS.
20. HISTORY OF GREEK COMEDY.
21. INTRODUCTION TO GREEK EPIGRAPHY.
22. STUDY OF GREEK DIALECTS FROM INSCRIPTIONS.
23. SEMINAR IN POETS OF ALEXANDRIAN PERIOD.
24. SEMINAR IN EARLY GREEK PHILOSOPHY.
25. SEMINAR IN GREEK RELIGION AND ETHICS.

HISTORY

PROFESSOR WILLARD, ASSISTANT PROFESSOR ECKHARDT, AND
MR. HURST:—

Open to Graduates on Consultation.

13. ATHENIAN DEMOCRACY AND ITS ANCIENT CRITICS.
14. THE FALL OF THE ROMAN REPUBLIC.
15. THE EARLY CHURCH.
16. THE MEDIEVAL CHURCH AND THE REFORMATION.
17. ENGLISH MEDIEVAL INSTITUTIONS.
18. THE RENAISSANCE.
19. ENGLISH COLONIAL EXPANSION.
20. ADVANCED MODERN EUROPEAN HISTORY.
21. STUDIES IN GERMAN CIVILIZATION.
22. THE DEVELOPMENT OF THE WEST.
23. AMERICAN HISTORY SINCE 1880.
24. HISTORICAL METHODS AND BIBLIOGRAPHY.
25. METHODS OF TEACHING HISTORY.

For Graduates Only.

27. SEMINAR IN AMERICAN HISTORY. Throughout the year. 3 h.
28. THE ENGLISH MEDIEVAL BOROUGH. Throughout the year. 3 h.
Seminar on early borough institutions.

LATIN LANGUAGE AND LITERATURE

PROFESSORS HELLEMS AND DERHAM:—

18. LUCRETIVS.
21. MARTIAL.
24. SUETONIUS.
26. ADVANCED LATIN PROSE.
27. GREEK AND ROMAN ARCHÆOLOGY.
28. MINOR LATIN POETS.

A study of the more significant among the minor poets.

For Graduates Only.

29. ROMAN LAW.
(1) Gaii Institutiones Juris Civilis. 3 h.
(2) Elements of Roman Law. 2 h.
30. ROMAN ADMINISTRATION. 3 h.

The development of Roman public institutions in their historical sequence.

31. ROMAN TOPOGRAPHY. 2 h.

The topography of Rome in the historical development of the city.

32. INTERPRETATION OF EARLY LATIN. 2 h.

Selected examples of Early Latin.

33. EPIGRAPHY. 2 h.

Cagnat's *Cours d'Epigraphie Latine*; Egbert's Introduction; handling of the *Corpus Inscriptionum Latinarum*.

34. LATIN MORPHOLOGY. 2 h.

The subject will be approached from the comparative side.

35. LATIN SYNTAX. 2 h.

The subject will be treated comparatively.

36. LATIN PALÆOGRAPHY. 2 h.

An introduction to the subject.

37. SEMINAR ON DOMITIAN.

A study of the sources for the life and reign of Domitian; particular stress will be laid on the epigraphical side.

38. TACITUS. 2 h.

A rapid reading course in the *Annals* with a consideration of the historical problems raised.

39. PERSIUS. 2 h.

Interpretation of the text; Stoicism in the early Empire.

40. ROMAN PROVINCIAL ADMINISTRATION.

Pliny, *Letters*, book X; selections from Cicero's correspondence.

LAW

PROFESSOR FLEMING:—

CONSTITUTIONAL LAW. 5 h.

SALES OF PERSONAL PROPERTY. 5 h.

IRRIGATION. 3 h.

MINING LAW. 3 h.

PROFESSOR REED:—

DOMESTIC RELATIONS. 3 h.

BILLS AND NOTES. 5 h.

PRIVATE AND MUNICIPAL CORPORATIONS. 5 h.

PROFESSOR ARTHUR:—

REAL PROPERTY. 5 h.

LAW OF CONTRACTS. 5 h.

PROFESSOR FOLSOM:—

BAILMENTS AND CARRIERS. 2 h.

LITERATURE, COMPARATIVE AND ENGLISH

PROFESSOR BRACKETT, DEAN BIGELOW, MR. WOLLE, AND MISS BURTON:—

1. PRINCIPLES AND MASTERPIECES OF ART.
8. THE GREAT DRAMA.
11. WORLD DRAMA.
12. THE GREAT EPICS.
13. MASTERPIECES OF PROSE FICTION.
14. THE SHORT STORY.
15. TENNYSON.
16. BROWNING.
17. SHELLEY.

For Graduates Only

19. THE HISTORY OF ENGLISH LITERATURE.

Study of selected periods; the Elizabethan period; the age of Milton; the nineteenth century; contemporary authors.

20. STUDIES IN VICTORIAN LITERATURE AND ART. Throughout the year. 5 h. 1914.

Ruskin and Turner; the Pre-Raphaelite Movement; the Rossettis; Burne-Jones; Holman Hunt; George Frederick Watts; William Morris; Walter Crane.

21. THE PREDECESSORS OF SHAKESPEARE. 5 h. 1904.
22. THE RENAISSANCE IN EUROPE. 5 h. 1909.
23. THE TEACHING OF LITERATURE. 1911.
24. THE HISTORY OF ENGLISH PROSODY. 1915
25. THE HISTORY OF CRITICISM. 1912.
26. THE RHYTHMS OF ENGLISH PROSE. 1915

MATHEMATICS

PROFESSOR DELONG, MISS KENDALL, AND DR. ALTSHILLER:—

11. DIFFERENTIAL CALCULUS. As a minor to majors in science.
12. INTEGRAL CALCULUS. As a minor to majors in science.

- 13. DIFFERENTIAL EQUATIONS.
- 17. ANALYTIC SOLID GEOMETRY.
- 18. COMPLEX FUNCTIONS.
- 21. PROJECTIVE GEOMETRY.
- 22. TRANSCENDENTAL FUNCTIONS.
- 23. CONTINUATION COURSES. See page 94.
- 24. CONTINUATION COURSES. See page 94.

For Graduates Only.

- 25. HIGHER PLANE CURVES.
- 26. THEORY OF INVARIANTS.
- 27. MATHEMATICAL THEORY OF PROBABILITY AND SOME OF ITS APPLICATIONS.

MECHANICAL ENGINEERING

PROFESSOR HUNTER AND ASSISTANT PROFESSOR BAUER:—

For Graduates Only.

- 101. ADVANCED MACHINE DESIGN.
- 102. GRAPHICS AND KINEMATICS.
- 103. ADVANCED STEAM ENGINEERING.
- 104. EXPERIMENTAL ENGINEERING.
- 105. PNEUMATICS.
- 106. RAILWAY MECHANICAL ENGINEERING.
- 107. MECHANICAL REFRIGERATION.
- 108. ADVANCED GAS ENGINES.

MUSIC

PROFESSOR CHADWICK:—

- 4. CANON AND FUGUE.
- 5. COMPOSITION AND ORCHESTRATION.
- 6. HISTORY OF MUSIC.
- 7. AESTHETICS AND PHILOSOPHY OF MUSIC.

OPHTHALMOLOGY

For courses see page 251.

PHILOSOPHY

PROFESSOR LIBBY:—

All candidates must get from the Department of Philosophy a written statement of specific requirements at the beginning of each

year. The *thesis-subject* may be chosen from any branch of Philosophy.

For A.M.

For *major* high grades in undergraduate courses and advanced readings in sources of Philosophy, and in Metaphysics; for *minor*, a thorough knowledge of the whole history of Philosophy.

For Ph.D.

For major, courses for A.M. major, with further advances in history of Philosophy and in special disciplines. Candidate must be able to read German and French at sight. For minor, advanced history of Philosophy only, including special knowledge of two philosophers.

PHYSICS

PROFESSOR LESTER, ASSISTANT PROFESSOR WOODROW, MR.
———, AND MR. FINNEY:—

For Graduates and Undergraduates.

5. THEORETICAL MECHANICS—STATICS.
6. THEORETICAL MECHANICS—DYNAMICS.
8. THEORY OF ELECTRICITY AND MAGNETISM.
9. ELECTRICAL MEASUREMENTS.
10. THEORY OF ELECTRICITY—ALTERNATING CURRENTS.
11. PROPERTIES OF MATTER. Omitted in 1916-1917.
12. HEAT AND THERMODYNAMICS. Omitted in 1916-1917.
13. LIGHT.
14. ADVANCED ELECTRICAL MEASUREMENTS. Second semester. Hours and credit to be arranged.
21. INTRODUCTION TO MATHEMATICAL ASTRONOMY. Omitted in 1916-1917.

Primarily for Graduates.

30. KINETIC THEORY OF GASES. Second semester. 2 h.

Lectures and recitations. Omitted in 1916-1917.

The important physical properties of gases will be considered from the viewpoint of the kinetic theory of matter.

Prerequisite: Course 12 and calculus, Course 6 advised.

31. CONDUCTION OF ELECTRICITY THROUGH GASES. Second semester. 3 h.

Lectures and recitations.

A course dealing with the properties of ions and electrons in their relation to the passage of electricity through gaseous media.

Prerequisite: courses 6, 8, 9, and calculus.

32. VECTOR ANALYSIS. Throughout the year. 2 h.

A study of vector analysis as developed by Gibbs with applications to problems of mathematical physics.

Prerequisite: courses 6, 8, and calculus; differential equations advised.

33. ADVANCED ANALYTICAL MECHANICS. Second semester. 3 h.

Prerequisite: courses 5, 6, calculus, and differential equations.

34. ADVANCED MATHEMATICAL PHYSICS. Throughout the year. Hours and credit to be arranged.

A course dealing with certain phases of theoretical physics and involving a general knowledge of physical facts and principles and considerable mathematical equipment.

Prerequisite: permission of the instructor.

35. RADIOACTIVITY. First semester: lectures, 2 hours. Second semester: laboratory work three to six hours. 2 h. Omitted in 1916-1917.

A study of the radio-elements and the phenomena and theory of atomic disintegration. Laboratory work in detecting and measuring radio-activity.

Prerequisite: courses 1 to 4 inclusive, 8 and calculus.

36. ELECTRON THEORY. Second semester. 3 h.

A course of lectures and reading dealing with the evidence which has led to the idea of the electron, the atomic structure of electricity and the corpuscular theory of matter; the bearing of the electron theory on the explanation of various physical phenomena.

Prerequisite: permission of the instructor.

37. JOURNAL CLUB. An organization composed of all instructors, graduate, and advanced undergraduate students in the departments of physics and physical chemistry, meeting once a week from 4:30 to 6:00 for the discussion of recent research.

PSYCHOLOGY

PROFESSORS COLE AND THOMPSON:—

2. COMPARATIVE PSYCHOLOGY.
3. ADVANCED PSYCHOLOGY.
4. PATHOLOGICAL PSYCHOLOGY.
- 5-6. EXPERIMENTAL PSYCHOLOGY.
7. EDUCATIONAL PSYCHOLOGY.
8. THE PSYCHOLOGY OF GRAMMAR-SCHOOL AND HIGH-SCHOOL SUBJECTS.
11. SOCIAL PSYCHOLOGY. (EDUCATION 12.)
12. CHILD STUDY.
13. ANATOMY OF THE CENTRAL NERVOUS SYSTEM.

For Graduates Only.

14. ADVANCED EXPERIMENTAL PSYCHOLOGY.

Students in this course will be expected to carry on systematic investigations in special problems.

PUBLIC HEALTH

For courses, see special bulletin on Courses in Public Health.

ROMANCE LANGUAGES AND LITERATURES

PROFESSOR AYER, MR. RENAUD, AND MR. PLACE:—

FRENCH

- 7-8. HISTORY OF FRENCH LITERATURE. 6 h.
10. FRENCH SHORT STORIES. 2 h.
11. FRENCH DRAMA. 2 h.
12. FRENCH LITERARY CRITICISM. 2 h.
13. SYNTAX OF THE FRENCH VERB. 2 h.

For Graduates Only.

14. OLD FRENCH WITH COMPARATIVE ROMANCE PHILOLOGY. 2 h.
Constant's *Chrestomathie de l'ancien Français*.
15. COMPARATIVE ROMAN SYNTAX ON BASIS OF FRENCH. 2 h.

SPANISH

- 5-6. THIRD-YEAR COURSE. 4 h.

For Graduates Only.

7. OLD SPANISH.

Comparative Romance Philology with special reference to Spanish; Keller's *Altspanisches Lesebuch*; *El Poema del Cid*.

ITALIAN

3. DANTE'S DIVINE COMEDY.
4. ALFIERI AND GOLDONI.

For Graduates Only.

5. OLD ITALIAN.

Comparative Romance Philology, with special reference to Italian. Monaci's *Crestomazia Italiana dei primi secoli*.

PORTUGUESE

For Graduates Only.

1. GRAUERT'S PORTUGUESE GRAMMAR, with reading from the *Boletim da Uniao Pan-Americana*.

A quick course in grammar with much sight reading.

Prerequisite: French, Spanish and Italian.

SOCIAL SCIENCE

PROFESSOR BUSHEE, ASSISTANT PROFESSOR LIEN, AND MR. BOYCE:—

I. ECONOMICS

4. PRINCIPLES OF ADVERTISING.
5. STATISTICS.
8. LABOR PROBLEMS.
9. MONEY AND BANKING.
10. TRANSPORTATION.
11. CORPORATIONS.
12. TAXATION.
13. LIFE INSURANCE.
15. TRUSTS.
16. BUSINESS ORGANIZATION AND SCIENTIFIC MANAGEMENT.

For Graduates Only.

18. HISTORY AND CRITICISM OF ECONOMIC THEORIES. First semester.
2 h.

Lectures, reading, reports.

The lectures will deal with the economic ideas of Plato and Aristotle; the influence of the Roman Law; the Canonists; Mercantilists; Physiocrats; Adam Smith; Ricardo; Malthus; John Stuart Mill; the Historical School; Jevons and the Aus-

trian School. The aim is not only to study the content of economic theory, but also to exhibit theory in the light of political and social conditions.

19. SEMINAR IN ECONOMICS. Throughout the year. 2 h.

II. SOCIOLOGY

1. PRINCIPLES OF SOCIOLOGY.
2. PROBLEMS IN SOCIOLOGY.
3. SOCIALISM.
4. ADVANCED THEORY OF SOCIOLOGY.

For Graduates Only.

5. SEMINAR IN SOCIOLOGY. Throughout the year. 2 h.

III. POLITICAL SCIENCE

3. COMPARATIVE EUROPEAN GOVERNMENT.
4. MUNICIPAL GOVERNMENT.
5. POLITICAL PARTIES AND PARTY PROBLEMS.
6. CONSULAR AND DIPLOMATIC SERVICE.
7. INTERNATIONAL LAW.
8. MUNICIPAL PROBLEMS.

SCHOOL OF MEDICINE

FACULTY*

LIVINGSTON FARRAND, A.M., M.D., LL.D., President of the University.
ROSS C. WHITMAN, A.B., M.D., *Secretary at Boulder*, Professor of Pathology.

CHARLES N. MEADER, A.B., M.D., *Secretary at Denver*, Assistant Professor of Medicine.

SHERMAN G. BONNEY, A.M., M.D., *Denver*, Professor of Medicine, Emeritus.

THOMAS H. HAWKINS, A.M., M.D., LL.D., *Denver*, Professor of Surgery (Gynecology and Abdominal Surgery), Emeritus.

WILLIAM C. MITCHELL, M.D., *Denver*, Professor of Bacteriology, Emeritus.

CHARLES A. POWERS, A.M., M.D., *Denver*, Professor of Surgery (Clinical Surgery), Emeritus.

EDMUND J. A. ROGERS, A.M., M.D., *Denver*, Professor of Surgery, Emeritus.

WILLIAM J. ROTHWELL, M.D., *Denver*, Professor of Medicine, Emeritus.

THOMAS E. TAYLOR, A.B., M.D., *Denver*, Professor of Obstetrics, Emeritus.

†JAMES R. ARNEILL, A.B., M.D., *Denver*, Professor of Medicine (Clinical Medicine).

WILLIAM C. BANE, M.D., *Denver*, Professor of Oto-laryngology.

MELVILLE BLACK, M.D., *Denver*, Professor of Ophthalmology.

CLOUGH T. BURNETT, M.D., *Boulder*, Professor of Bacteriology.

T. MITCHELL BURNS, M.D., *Denver*, Professor of Obstetrics.

‡F. GILLET BYLES, A.M., M.D., *Denver*, Professor of Hygiene.

GEORGE H. CATTERMOLLE, M.D., *Boulder*, Professor of Medicine (Pediatrics).

* Arranged alphabetically—professors, assistant professors, lecturers, instructors, assistants—without reference to length of service.

† On leave of absence, 1916-1917.

‡ Died, October 22, 1915.

JOHN CHASE, A.B., M.D., *Denver*, Professor of Ophthalmology and Otology.

SAMUEL B. CHILDS, A.B., M.D., *Denver*, Professor of Roentgenology.

DAVID H. COOVER, M.D., *Denver*, Professor of Ophthalmology.

RICHARD W. CORWIN, M.D., LL.D., *Pueblo*, Professor of Surgery.

WILLIAM B. CRAIG, M.D., *Denver*, Professor of Surgery.

WILLIAM H. DAVIS, M.D., *Denver*, Professor of Dermatology and Genito-Urinary Diseases.

JOHN BERNARD EKELEY, Ph.D., Sc.D., *Boulder*, Professor of Chemistry.

CHARLES S. ELDER, M.D. *Denver*, Professor of Surgery (Gynecology).

JOHN M. FOSTER, M.D., *Denver*, Professor of Oto-laryngology.

LEONARD FREEMAN, B.S., A.M., M.D., *Denver*, Professor of Surgery.

LUMAN M. GIFFIN, M.D., *Boulder*, Professor of Surgery.

OSCAR M. GILBERT, M.D., *Boulder*, Professor of Medicine (Clinical Medicine).

CARBON GILLASPIE, M.D., *Boulder*, Professor of Anatomy.

JOSIAH N. HALL, B.S., M.D., *Denver*, Professor of Medicine.

HORACE G. HARVEY, A.B., M.D., *Denver*, Professor of Surgery.

EDWARD JACKSON, A.M., M.D., *Denver*, Professor of Ophthalmology.

WALTER A. JAYNE, M.D., *Denver*, Professor of Surgery (Gynecology and Abdominal Surgery).

MOSES KLEINER, M.D., *Denver*, Professor of Therapeutics.

ROBERT LEVY, M.D., *Denver*, Professor of Oto-laryngology.

CHARLES B. LYMAN, M.D., *Denver*, Professor of Surgery.

FRANCIS H. McNAUGHT, M.D., *Denver*, Professor of Obstetrics.

ARTHUR J. MARKLEY, D.D.S., M.D., *Denver*, Professor of Dermatology.

GEORGE E. NEUHAUS, M.D., *Denver*, Professor of Neurology and Psychiatry.

GEORGE B. PACKARD, M.D., *Denver*, Professor of Surgery (Orthopedics).

ALVIN R. PEEBLES, M.D., *Boulder*, Director of the Henry S. Denison Research Laboratory; Professor of Preventive and Experimental Medicine.

HOWELL T. PERSHING, M.S., M.D., LL.D., *Denver*, Professor of Neurology and Psychiatry.

JAMES H. PERSHING, A.B., *Denver*, Professor of Medical Jurisprudence.

E. BARBER QUEAL, M.D., *Boulder*, Professor of Physiology.

HENRY SEWALL, Ph.D., M.D., *Denver*, Professor of Medicine.

WILLIAM H. SHARPLEY, M.D., *Denver*, Professor of Medicine (Contagious Diseases).

CHARLES F. SHOLLENBERGER, M.D., *Denver*, Professor of Medicine (Pediatrics).

*GEORGE H. STOVER, M.D., *Denver*, Professor of Roentgenology.

†JAMES C. TODD, Ph.B., M.D., *Boulder*, Professor of Clinical Pathology.

CHARLES B. VAN ZANT, M.D., *Denver*, Professor of Physiology.

HERBERT B. WHITNEY, A.B., M.D., *Denver*, Professor of Medicine (Pediatrics).

NEWTON WIEST, M.D., *Denver*, Professor of Dermatology.

FROST C. BUCHEL, M.D., *Denver*, Assistant Professor of Surgery.

JACOB CAMPBELL, M.D., *Boulder*, Assistant Professor of Surgery.

EDWARD F. DEAN, M.D., *Denver*, Assistant Professor of Surgery (Clinical Surgery).

ROBERT C. LEWIS, Ph.D., *Boulder*, Assistant Professor of Physiology and Physiological Chemistry.

WALTER W. REED, M.D., *Boulder*, Assistant Professor of Obstetrics.

AUBREY H. WILLIAMS, M.D., *Denver*, Assistant Professor of Surgery (Clinical Surgery).

EDWARD DELEHANTY, M.D., *Denver*, Lecturer on Neurology.

OLIVER LYONS, M.D., *Denver*, Lecturer on Genito-Urinary Diseases.

ALFRED R. SEEBASS, Ph.G., M.D., *Denver*, Lecturer on Life Insurance Examinations.

JOHN W. AMESSE, M.D., *Denver*, Instructor in Medicine.

RUDOLPH W. ARNDT, M.D., *Denver*, Instructor in Medicine.

ROBERT L. CHARLES, M.D., *Denver*, Instructor in Anæsthesia.

FRANK R. COFFMAN, M.D., *Denver*, Instructor in Contagious Diseases.

EDWARD WELLES COLLINS, M.D., *Denver*, Instructor in Oto-laryngology.

CLAUDE EDWARD COOPER, A.B., M.D., *Denver*, Instructor in Oto-laryngology.

HELEN FRANCES CRAIG, B.S., M.D., *Denver*, Instructor in Pathology.

WILLIAM H. CRISP, M.D., D.Oph., *Denver*, Instructor in Ophthalmology.

CLAY E. GIFFIN, A.B., M.D., *Boulder*, Instructor in Surgery.

* Died, March 25, 1915.

† On leave of absence, first semester, 1915-1916.

PHILIP HILLKOWITZ, B.S., M.D., *Denver*, Instructor in Pathology.
CLARENCE B. INGRAHAM, Ph.B., M.D., *Denver*, Instructor in Obstetrics.
SAMUEL FOSDICK JONES, M.D., *Denver*, Instructor in Surgery (Orthopedics).

WILLIAM WILEY JONES, A.B., M.D., *Denver*, Instructor in Medicine.
GEORGE P. LINGENFELTER, M.D., *Denver*, Instructor in Dermatology.
TRACY R. LOVE, Ph.B., M.D., *Denver*, Instructor in Medicine.
EDWARD R. MUGRAGE, A.M., M.D., *Denver*, Instructor in Pathology.
CYRUS L. PERSHING, B.S., M.D., *Denver*, Instructor in Neurology.
FRANK R. SPENCER, A.B., M.D., *Boulder*, Instructor in Oto-laryngology.
EDWARD B. TROVILLION, M.D., *Boulder*, Instructor in Anatomy.
THOMAS F. WALKER, M.D., *Boulder*, Instructor in Histology and Embryology.

HENRY WILLIAMS WILCOX, M.D., *Denver*, Instructor in Surgery (Orthopedics).

JOHN S. BOUSLOG, A.B., *Denver*, Assistant in Pathology.
LEO B. COHENOUR, *Boulder*, Assistant in Histology and Pathology.
DORA VON HOLDT, *Boulder*, Assistant in Bacteriology.
MAURICE KATZMAN, *Boulder*, Assistant in Pathology.
LEWIS I. MILLER, A.B., *Boulder*, Assistant in Anatomy.
LEC TEPLITZKY, *Denver*, Assistant in Pathology.

EXECUTIVE COMMITTEE

WALTER A. JAYNE, *Chairman*, Hospital Committee.
Term expires January 1, 1917.

OSCAR M. GILBERT.
Term expires January 1, 1918.

ROBERT LEVY, *Chairman*, Dispensary Committee.
Term expires January 1, 1919.

EDWARD JACKSON, *Chairman*, Course Committee.
Term expires January 1, 1920.

ROSS C. WHITMAN, *Secretary, ex-officio*, *Boulder*.
CHARLES N. MEADER, *Secretary, ex-officio*, *Denver*.

HOSPITAL AND DISPENSARY STAFF

MEDICINE

PROFESSORS.

JAMES R. ARNEILL.

JOSIAH N. HALL.

WILLIAM H. SHARPLEY.

CHARLES B. VAN ZANT.

HENRY SEWALL.

DOCTORS.

RUSSELL T. RAMSEY, Chief.

JOHN W. AMESSE.

RUDOLPH W. ARNDT.

MURRAY BARNEY.

AMOS L. BEAGHLER.

BERNARD C. DORSET.

JOHANNA GELIEN.

CLINTON G. HICKEY.

JOHN INGLIS.

WILLIAM WILEY JONES.

F. C. KENNELLY.

TRACY R. LOVE.

CHARLES N. MEADER.

GEORGE K. OLMSTEAD.

*L. HUBER SCHULTZ.

HARRY S. SIAFER.

S. SIMON.

PEDIATRICS

PROFESSORS.

GEORGE H. CATTERMOLLE.

HERBERT B. WHITNEY.

DOCTORS.

JOHN W. AMESSE.

WILSON C. BIRKENMAYER.

BERNARD C. DORSET.

FRANK P. GENGENBACH.

LOUIS C. WOLLENWEBER.

NEUROLOGY

PROFESSORS.

GEORGE E. NEUHAUS.

HOWELL T. PERSHING.

DOCTORS.

EDWARD DELEHANTY.

EDWARD W. LAZELL.

GEORGE A. MOLEEN.

RICHARD GILCHRIST SMITH.

MARTIN L. STIFFLER.

CYRUS L. PERSHING.

* Died, August 14, 1915.

SURGERY

PROFESSORS.

WILLIAM B. CRAIG.
EDWARD F. DEAN.
LEONARD FREEMAN.
CHARLES B. LYMAN.

GEORGE B. PACKARD.
CHARLES A. POWERS.
EDMUND J. A. ROGERS.
AUBREY H. WILLIAMS.

DOCTORS.

PROFESSOR FROST C. BUCHTEL, Chief.

HASKELL COHEN.
ALEXANDER C. CRAIG.
STANLEY B. EICHBERG.
ORA S. FOWLER.
HAROLD G. GARWOOD.
CASPER F. HEGNER.
S. FOSDICK JONES.

C. G. McEACHERN.
ROBERT G. PACKARD.
JAMES M. PERKINS.
FRANK ROGERS.
OSCAR M. SHERE.
NATHANIEL A. THOMPSON.
HENRY W. WILCOX.

GYNECOLOGY

PROFESSORS.

CHARLES S. ELDER.

WALTER A. JAYNE.

HORACE G. HARVEY.

DOCTORS.

M. ETHEL V. FRASER.
CLARENCE B. INGRAHAM.
CHARLES JAEGER.

SAMUEL M. OPPENHEIM.
CUTHBERT POWELL.
MARY REED STRATTON.

OBSTETRICS

PROFESSOR.

T. MITCHELL BURNS.

DOCTORS.

IDA VALERIA BEERS.
PHILLIPS M. CHASE.
HARRY L. CHAMPLIN.
CHARLES A. FERRIS.

CLARENCE B. INGRAHAM.
ARTHUR MCGUGAN.
GEORGE L. MONSON.
FRANK W. STAHL.

OPHTHALMOLOGY

PROFESSORS.

MELVILLE BLACK.

DAVID H. COOVER.

JOHN CHASE.

EDWARD JACKSON.

DOCTORS.

HUGO AUFWASSER.

JOHN MCCAW.

E. T. BOYD.

DANIEL G. MONAGHAN.

WILLIAM H. CRISP.

WILLIAM A. SEDWICK.

WILLIAM C. FINNOFF.

HIRAM R. STILWILL.

OTO-LARYNGOLOGY

PROFESSORS.

WILLIAM C. BANE.

ROBERT LEVY.

DOCTORS.

WILLIAM M. BANE.

EDWARD WELLES COLLINS.

HARRY L. BAUM.

CLAUDE E. COOPER.

EDGAR F. CONANT.

ORVILLE D. WESCOTT.

DERMATOLOGY AND GENITO-URINARY DISEASES

PROFESSORS.

WILLIAM H. DAVIS.

ARTHUR J. MARKLEY.

NEWTON WIEST.

DOCTORS.

J. B. DAVIS.

OLIVER W. LYONS.

GEORGE P. LINGENFELTER.

W. M. SPITZER.

GENERAL STATEMENT

HISTORICAL NOTE

The University of Colorado School of Medicine was opened in September, 1883. On January 1, 1911, the Denver and Gross College of Medicine was united with this School, the two faculties being combined into one. The single school thus formed is an integral part of the University of Colorado. At the same time the third and fourth-year classes were transferred to Denver, where greatly enlarged clinical facilities are available. The Denver and Gross College of Medicine was the union June 19, 1902, of the Denver College of Medicine, a department of the University of Denver, and the Gross Medical College. The former College was opened November, 1881, and the latter in 1887. The School is a member of the Association of American Medical Colleges.

The first two years constitute the Boulder Division of the School, and the last two years, the Denver Division.

THE HENRY S. DENISON RESEARCH LABORATORIES

The Henry S. Denison Research Laboratories, together with the Denison Memorial Building, are the gift of Mrs. Ella Strong Denison in memory of her son, Dr. Henry S. Denison, who was a member of the Medical Faculty. The west wing of the building is now completed. It contains special rooms and equipment for research and advanced work in chemistry, physiology, pathology, bacteriology, and clinical medicine, together with the necessary accessory rooms, such as library, cold room, incubator room, operating and sterilizing rooms, dark room, etc. To all who have the necessary educational prerequisites, opportunity is here offered for special work and research.

CLINICS

A course is given at Boulder in operative surgery on the cadaver and dog. In Denver, operative and bedside clinics, clinical conferences and ward-walks are held daily at the Denver City and County Hospital, 400 beds. The Hospital clinics are so arranged that small groups of students have an opportunity to study and observe the cases intimately, under the direction of the proper members of the

faculty. The School also maintains a dispensary where daily clinics are attended by small groups of students in Medicine; Pediatrics; Neurology; Surgery; Gynecology; Orthopedics; Eye; Ear, Nose, and Throat; Dermatology and Genito-Urinary Surgery; and the Clinical Laboratory. There are more than 20,000 visits yearly to the Dispensary. In addition to these, clinics are held for small groups of students at St. Joseph's Hospital, 200 beds, and the Contagious (Steele) Hospital. Clinical facilities are also provided at St. Luke's Hospital, 100 beds; St. Anthony's Hospital, 200 beds; Mercy Hospital, 125 beds; the Woman's Hospital; the National Jewish Hospital for Consumptives; the State Home for Dependent Children; and the Children's Hospital.

There is abundant material for teaching obstetrics, each member of the senior class being required to attend a minimum of six cases, in addition to seeing cases delivered by members of the faculty. Students who desire to do so may attend a much larger number of cases.

SESSION OF 1916-1917

The next term begins September 11, 1916.

Applicants for admission are urged to see that their entrance credentials are in the hands of the Registrar on or before September 8, 1916, in order that these may be examined and passed upon in advance of registration.

For further information, address the Registrar, Fred E. Hagen, Boulder.

REQUIREMENTS FOR ADMISSION

See pages 27, 31.

SPECIAL STUDENTS

See page 31.

ADVANCED STANDING

Candidates from a medical college on the accepted list must present to the Registrar of the University at the time of matriculation satisfactory credentials showing that the entrance requirements as given above, have been complied with, and that all the work in which advanced credit is sought has been completed. Students from schools rated in grade "B" are admitted only after passing examinations. The School will cooperate in adjusting so far as possible difficulties arising from differences in the arrangement of

the curriculum. The responsibility for making these adjustments rests finally, however, with the student, who is expected to make satisfactory arrangements with the instructors concerned.

COURSES LEADING TO TWO DEGREES

A seven-year course leading to the degrees of A.B. and M.D. is offered. The student pursues the regular work of the College of Liberal Arts for three years and then begins his medical studies. The A.B. degree is conferred upon the completion of the first year of Medicine.

REQUIREMENTS FOR A DEGREE

Every candidate for the degree of Doctor of Medicine must be twenty-one years of age, possess a good moral character, and be of temperate habits. He must have passed satisfactory examinations in all the required studies included in the full course of instruction. He must have attended regularly four full courses of lectures of not less than thirty-two weeks each, in some accredited medical college. No two of such courses shall have been taken in the same year. The last course must be taken in this School. An allowance for absence will be made for no other cause than the illness of the student or of his immediate family, and such absence from any course must not exceed twenty percentum of the scheduled hours. A thesis acceptable to the faculty must be presented before graduation.

FEES

For fees, see pages 34, 35.

DESCRIPTION OF COURSES*

FIRST YEAR (AT BOULDER)

ANATOMY, HISTOLOGY, AND EMBRYOLOGY

Anatomy is taught by means of lectures, recitations, drawings, and demonstrations upon the cadaver. Work in the dissecting room is prosecuted under the personal supervision of the professor and demonstrators of anatomy. Every facility and encouragement is given the student in the anatomical room to pursue work beyond the requirements of the prescribed course. The anatomical material is furnished free.

1. OSTEOLOGY AND DISSECTION. Throughout the year. 256 h.

Dissections, including osteology; laboratory exercises, lectures and recitations.

Professor Gillaspie and Doctor Trovillion.

2. ANATOMY OF THE CENTRAL NERVOUS SYSTEM. Second semester. 80 h.

Dissection of the brain and cord, and study of fiber tracts from dissections, charts, and microscopic preparations.

Professor Gillaspie.

3. HISTOLOGY. First semester. 150 h.

Lectures, recitations, and laboratory exercises.

Microscopic anatomy of the various tissues and organs.

Doctor Walker.

4. EMBRYOLOGY. First semester. 102 h.

Laboratory exercises, lectures and recitations on the development of the human body, and foetal anatomy.

Doctor Walker.

CHEMISTRY

1. ORGANIC CHEMISTRY. Second semester. 184 h.

Lectures, accompanied by laboratory exercises in which the student acquires a first hand acquaintance with the compounds discussed in the lectures.

Professor Ekeley and Assistants.

* The hours indicated after each course show the total time devoted to the course.

BACTERIOLOGY

1. GENERAL BACTERIOLOGY. Second semester. 152 h.

Lectures, recitations, and laboratory work on the chemistry and biology of bacteria, classification, methods of isolation, culture and staining; phenomena of infection, and cultural characteristics of the pathogenic organisms. Some time is also devoted to the methods of water and milk analysis, and the identification of cultures.

Professor Burnett and Assistant.

PHYSIOLOGY

1. PHYSIOLOGY. Second semester. 80 h.

Recitations on general and cell physiology, and the physiology of nerve and muscle, central nervous system, blood and lymph circulation, and respiration.

Assistant Professor Lewis.

SECOND YEAR (AT BOULDER)

ANATOMY

1. SURGICAL ANATOMY. Throughout the year. 112 h.

Recitations and dissections with special reference to general surgery, obstetrics, and the surgery of the eye, ear, nose, and throat.

Professor Gillaspie.

2. ANATOMY OF THE CENTRAL NERVOUS SYSTEM AND SPECIAL SENSE ORGANS. Second semester. 48 h.

Lectures and dissections.

An elective course primarily designed for students of psychology.

Professor Gillaspie.

PHYSIOLOGY

1. PHYSIOLOGY. First semester. 80 h.

Recitations on the physiology of digestion and nutrition, secretion, heat production and regulation, the special senses, and reproduction.

Assistant Professor Lewis.

2. **PHYSIOLOGY LABORATORY.** First semester. 96 h.

Laboratory exercises and demonstrations of the physiology of nerve-muscle preparations, the special senses, circulation, respiration, digestion, internal secretions, hormones, etc.

Assistant Professor Lewis and Assistants.

3. **PHYSIOLOGICAL CHEMISTRY.** First semester. 96 h.

The chemistry of carbohydrates, fats, and proteids, of salivary, gastric, and pancreatic digestion, etc., with practical exercises in analysis of urine, stools, and stomach contents.

Assistant Professor Lewis.

PATHOLOGY

1. **GENERAL PATHOLOGY.** Throughout the year. 96 h.

Lectures and recitations on the causes, nature, and course of disease processes.

Professor Whitman.

2. **LABORATORY COURSE.** Second semester. 96 h.

Study of the pathologic histology of disturbances of circulation, the degenerations, inflammation, tissue regeneration, the specific infections, tumors, etc.

Professor Whitman.

HYGIENE

1. **HYGIENE AND PREVENTIVE MEDICINE.** First semester. 64 h.

Recitations based on a standard text on public and personal hygiene, epidemiology, and preventive medicine.

Professor Whitman.

BACTERIOLOGY

1. **ADVANCED BACTERIOLOGY.** Second semester. Hours as arranged.

An optional course, open to a limited number.

Practice in bacteriologic examination of water, milk, food, soil, air; determination of vital resistance, efficiency of antiseptics; methods of bacteriologic diagnosis of typhoid fever, diphtheria, tuberculosis, etc. To such students as are qualified, special problems are assigned for investigation.

Professor Burnett.

PHARMACOLOGY

1. PHARMACOLOGY. Second semester. 160 h.

A quiz course, accompanied by laboratory exercises, on the physiologic action, toxicology, and therapeutic uses of the most important drugs.

MEDICINE

1. PRINCIPLES OF MEDICINE. Second semester. 16 h.

Lectures on the nature of disease processes, the fundamental principles of differential diagnosis, and methods of physical examination.

Professor Cattermole.

2. NORMAL PHYSICAL DIAGNOSIS. Second semester. 48 h.

Recitations and laboratory exercises on the technique of auscultation, percussion, and palpation, and recognition of normal physical signs.

Professor Gilbert.

3. CLINICAL PATHOLOGY. Second semester. 90 h.

Recitations and laboratory drill on technique and interpretation of the results of clinical examination of sputum, blood, urine, stomach contents, feces, and pathologic secretions and excretions.

Professor Todd.

SURGERY

1. PRINCIPLES OF SURGERY. First semester. 32 h.

Lectures and recitations on wounds and healing of wounds, infection, inflammation, necrosis, surgical tuberculosis, bandaging, etc.

Professor Giffin and Doctor Giffin.

2. OPERATIVE SURGERY. Second semester. 80 h.

Students learn the technique of the principal surgical operations by performing them on cadavers, and later on dogs.

Assistant Professor Campbell.

THIRD YEAR (AT DENVER)

MEDICINE AND THERAPEUTICS

1. QUIZ COURSE. Throughout the year. 160 h.
Recitations on assigned portions of a standard text, and covering the subject of internal medicine.
Doctors Amessee and Jones.
2. CLINICAL MEDICINE. Throughout the year. 32 h.
A series of clinics at the County Hospital upon material from the medical wards.
Assistant Professor Meader.
3. PEDIATRICS. First semester. 32 h.
Lectures and recitations on infant feeding and the important diseases of childhood.
Professors Shollenberger and Whitney.
4. CLINICAL THERAPEUTICS. Second semester. 32 h.
Lectures and recitations on the application of the principles of pharmacology to specific therapeutic problems.
Professor Kleiner.
5. PHYSICAL DIAGNOSIS. First or second semester. 48 h.
Practical exercises to small groups of students on the recognition of abnormal signs, with lectures and recitations on their interpretation.
Doctor Arndt.
6. DIAGNOSTIC METHODS. Second semester. 16 h.
Lectures and demonstrations on the newer diagnostic instruments of precision, the interpretation of pulse and respiratory curves, etc.
Professor Sewall.
7. PATHOLOGICAL PHYSIOLOGY. First semester. 16 h.
Lectures on perverted action and function of diseased organs.
Professor Van Zant.
8. ROENTGENOLOGY. Second semester. 16 h.
Lectures and demonstrations on the diagnostic and therapeutic use of the X-Ray and on the interpretation of skiagrams.
Professor Childs.

NEUROLOGY

1. PRINCIPLES OF NEUROLOGY. First semester. 32 h.

Lectures reviewing the anatomy and physiology of the central nervous system, its symptomatology, and neurologic methods.

Professor Neuhaus.

2. NEUROLOGIC DIAGNOSIS. First or second semester. 48 h.

Practical exercises for small groups of students in history taking, and physical examination of neurologic patients, and the physiological interpretation of neurologic signs and symptoms. Instruction is also given in the diagnostic and therapeutic use of electricity.

Doctors Pershing and Stiffler.

3. PATHOLOGICAL PSYCHOLOGY. Second semester. 16 h.

Lectures on the fundamental laws of psychology as applied to the relation of physician and patient, and to diseased states, psychanalysis, etc.

Professor Neuhaus.

SURGERY

1. MINOR SURGERY. Throughout the year. 96 h.

Lectures on the surgery of the bones and joints, and the minor surgical operations.

Professor Harvey and Assistant Professors Buchtel and Williams.

2. ORTHOPEDICS. First semester. 16 h.

Lectures and recitations on the more important orthopedic conditions.

Professor Packard.

3. GENITO-URINARY SURGERY. First semester. 32 h.

Lectures.

Doctor Lyons.

GYNECOLOGY AND OBSTETRICS

1. GYNECOLOGY. First semester. 32 h.

Lectures.

Professor Elder.

2. NORMAL OBSTETRICS. First semester. 48 h.

Lectures on the physiology, diagnosis, and management of normal pregnancy, labor, and the puerperium.

Doctor Ingraham.

3. **PATHOLOGICAL OBSTETRICS.** Second semester. 32 h.

Lectures on the pathology, diagnosis, and treatment of the complications of pregnancy.

Professor McNaught and Assistant Professor Reed.

4. **MANIKIN COURSE.** First or second semester. 48 h.

The class is divided into small groups for practical exercises on the manikin, and practice in gynecological and obstetrical diagnosis, accompanied by lectures and recitations.

Doctor Ferris.

OPHTHALMOLOGY

1. **OPHTHALMOLOGY.** Second semester. 32 h.

Lectures and recitations on errors of refraction and ocular movements, and the common injuries and diseases of the eye.

Professor Jackson.

2. **DEMONSTRATIONS.** First or second semester. 16 h.

Demonstrations to small sections of the class on methods of diagnosis, ophthalmoscopy, etc., with lectures and recitations on normal optics.

Professor Jackson and Assistants.

OTO-LARYNGOLOGY

1. **OTO-LARYNGOLOGY.** Second semester. 32 h.

Lectures on diseases of the ear, nose, and throat.

Professors Bane, Foster, and Levy.

2. **DEMONSTRATIONS.** First or second semester. 32 h.

The class is divided into small groups for lectures and quizzes on the anatomy and physiology of the ear, nose, and throat, and for practical diagnostic exercises in the use of the otoscope, laryngoscope, rhinoscope, etc.

Professors Bane, Foster, and Levy.

DERMATOLOGY

1. **DERMATOLOGY.** Second semester. 32 h.

Lectures on the commoner diseases of the skin.

Professor Markley.

PATHOLOGY

1. SPECIAL PATHOLOGY. Throughout the year. 64 h.

Lectures and laboratory demonstrations on pathological conditions and disease processes of the more important organs and organ systems.

Doctor Hillkowitz.

2. IMMUNITY. Throughout the year. 96 h.

Lectures, recitations, and laboratory demonstrations on the phenomena of immunity, and their application to diagnosis and treatment. The course also includes practical laboratory exercises on tumor diagnosis.

Doctor Mugrage.

MEDICAL JURISPRUDENCE

1. LECTURES. First semester. 32 h.

Professor James H. Pershing.

FOURTH YEAR (AT DENVER)

CLINICAL INSTRUCTION

Clinical instruction is given in three forms, namely, amphitheater clinics, ward walks, and dispensary clinics. Students are given every facility compatible with the welfare of the patient, for direct personal examination of the patient.

GENERAL CLINICS are held from 8:30 to 10:00 at the County Hospital, as follows:

	No. Per Week.	Hours per Year.
Medicine	2	72
Surgery	2	96
Neurology and Psychiatry.....	1	24
Gynecology	1	48

WARD WALKS are held daily at the County Hospital from 10:00 to 11:00, the class being divided into small groups. In the course

of the year, each student spends the following number of hours in ward walks in the several departments:

	Hours.		Hours.
Medicine	33	Ear, Nose, and Throat.....	11
Surgery	44	Gross Pathology	11
Neurology and Psychiatry....	11	Pediatrics	11
Orthopedics	11	Contagious Diseases	11
Genito-Urinary Diseases	11	Ophthalmology	11
Dermatology	11		

OBSTETRICS. Each student is required to personally attend a minimum of six cases, and may, if he desires, attend a much larger number. He is also required to attend obstetric clinics at the County Hospital.

DISPENSARY CLINICS are conducted in the following departments: Medicine; Pediatrics; Surgery; Neurology; Gynecology; Eye; Ear, Nose and Throat; Dermatology and Genito-Urinary Surgery; and the Clinical Laboratory. The clinics are organized in such a manner as to teach methods of office practice. The class is divided into nine sections. Each section spends one and one-half hours daily for three weeks in each of the above departments. Selected cases are assigned by the staff to each student for history taking, examination, diagnosis, and treatment, so far as the last may be properly carried out by the student. In addition, students are expected to spend one or more hours each day in the wards of the County Hospital in the study of cases assigned for the purpose.

The didactic teaching of the fourth year is as follows:

MEDICINE

1. THEORY AND PRACTICE. Throughout the year. 48 h.

Lectures on diseases of the heart and the common medical maladies and their treatment.

Professor Hall.

2. CASE TEACHING. Throughout the year. 32 h.

Professor Gilbert and Doctor Jones.

3. CASE TEACHING IN PEDIATRICS. Second semester. 16 h.

Professor Cattermole.

4. DIETETICS. First semester. 32 h.

Lectures on physiological and pathological metabolism, with special reference to specific pathological conditions.

Doctor Love.

NEUROLOGY AND PSYCHIATRY

1. NEUROLOGY AND PSYCHIATRY. Throughout the year. 64 h.

Lectures on psychiatry, the psycho-neuroses, and the principles of psycho-therapy; and the organic diseases of the peripheral nerves, spinal cord, and brain.

Professor Pershing and Doctor Delehanty.

SURGERY

1. LECTURES. Throughout the year. 96 h.

Tumors and injuries of the abdomen, surgery of the breast, amputations, surgery of the intestines, liver, spleen, and pancreas, and surgery of the head, neck, and rectum.

Professors Craig, Corwin, Freeman, and Lyman.

DERMATOLOGY

1. LECTURES. Throughout the year. 32 h.

These lectures cover the ground of the important diseases of the skin and of genito-urinary surgery.

Professors Davis and Wiest.

SUMMARY OF COURSES FOR 1916-1917

FIRST YEAR:	Lect.	Lab.	Clin.	Tot.
Anatomy	133	235	..	368
Bacteriology	32	120	..	152
Chemistry	64	120	..	184
Histology and Embryology	64	208	..	272
Materia Medica	32	..	..	32
Physiology	80	..	..	80
	405	683	..	1,088
SECOND YEAR:				
Anatomy	48	64	..	112
Chemistry	16	80	..	96
Clinical Diagnosis	32	64	..	96
Hygiene	64	..	..	64
Medicine	16	..	..	16
Pathology	96	96	..	192
Pharmacology	64	96	..	160
Physiology	80	96	..	176
Physical Diagnosis	16	32	..	48
Surgery	44	60	..	104
	476	588	..	1,064

THIRD YEAR:

	Lect.	Lab.	Clin.	Tot.
Dermatology	32	..	..	32
Eye, Ear, Nose, and Throat.....	64	..	48	112
Genito-Urinary Diseases.....	32	..	..	32
Gynecology	32	..	..	32
Medical Jurisprudence	32	..	..	32
Medicine	192	..	32	224
Neurology and Electro Therapeutics	48	..	48	96
Obstetrics	80	..	48	128
Orthopedics	16	..	..	16
Pathology	96	64	..	160
Pediatrics	32	..	..	32
Physical Diagnosis .....	..	..	48	48
Roentgenology	16	..	..	16
Surgery	96	..	..	96
Therapeutics	32	..	..	32
	<hr/> 800	<hr/> 64	<hr/> 224	<hr/> 1,088

FOURTH YEAR:

Dermatology	32	..	25	57
Dietetics	32	..	..	32
Ear, Nose, and Throat .....	..	..	38	38
Genito-Urinary Diseases.....	..	..	25	25
Gynecology .....	..	..	75	75
Medicine	80	..	143	223
Neurology and Psychiatry	64	..	62	126
Obstetrics .....	..	..	80	80
Ophthalmology .....	..	..	38	38
Orthopedics .....	..	..	27	27
*Pathology .....	..	..	38	38
Pediatrics	16	..	38	54
Surgery	96	..	167	263
	<hr/> 320	<hr/> ..	<hr/> 756	<hr/> 1,076

RECAPITULATION:

First year	405	683	..	1,088
Second year	476	588	..	1,064
Third year	800	64	224	1,088
Fourth year	320	..	756	1,076
	<hr/> 2,001	<hr/> 1,335	<hr/> 980	<hr/> 4,316

* Does not include time at autopsy—attendance required at two each week.

UNIVERSITY OF COLORADO HOSPITAL

GENERAL STATEMENT

The University Hospital is situated on ground adjacent to the main campus. It is thoroughly equipped and has recently been enlarged by the addition of quarters for the isolation of cases of infectious disease, by a new wing for convalescent patients and for the open air treatment of disease, by a maternity room and a nursery. In the wards and private rooms there are accommodations for seventy-five patients.

Private patients may employ any reputable physician whom they may elect.

The Hospital is used in caring for students of the University and has been found of great advantage to them when in need of hospital care when away from home.

The Nurses' Home is a frame cottage situated on the Hospital grounds.

HOSPITAL FEES

General wards, \$10 to \$12 a week; private rooms, \$14 to \$25 a week; operating room fee, \$5 to \$10; maternity room and nursery, no extra charge; special nurse, \$20 to \$25 a week; medicine and dressings at cost.

HOSPITAL BOARD

WALTER W. REED, M.D.

GEORGE H. CATTERMOLLE, M.D.

FRANK R. SPENCER, M.D., Secretary.

OSCAR M. GILBERT, M.D.

HOSPITAL STAFF

WALTER W. REED, M.D., Superintendent.

MRS. CORA L. CHAMBERLIN, R.N., Superintendent of Nurses.

ELIZABETH MCCracken, R.N., Night Supervisor.

MRS. LUCINDA MARTIN, R.N., Surgical Supervisor.

LEO B. COHENOUR, Interne.

UNIVERSITY OF COLORADO TRAINING SCHOOL FOR NURSES

FACULTY

LIVINGSTON FARRAND, A.M., M.D., LL.D., President of the University.
CORA L. CHAMBERLIN, R.N., Superintendent of Nurses, Ethics of
Nursing, Practical Nursing, and Hospital Economics.

JACOB CAMPBELL, M.D., Surgery, Surgical Nursing.

GEORGE H. CATTERMOLLE, M.D., Diseases of Children, Infant Feeding,
Children's Nursing.

OSCAR M. GILBERT, M.D., Medical Nursing and Hygiene.

E. BARBER QUEAL, M.D., Physiology.

CARSON GILLASPIE, M.D., Anatomy, Histology.

WALTER W. REED, M.D., Gynecology, Obstetric Nursing.

HOMER C. WASHBURN, Ph.C., B.S. (Phar.), Materia Medica.

CLOUGH T. BURNETT, M.D., Bacteriology and Contagious Diseases.

LUCINDA MARTIN, R.N., Practical Nursing, Cooking and Practical
Dietetics.

FRANK R. SPENCER, M.D., Eye, Ear, Nose and Throat Nursing.

W. WALTER WASSON, M.D., Urinalysis.

GEORGE E. NEUHAUS, M.D., Nervous and Mental Disease Nursing.

GENERAL STATEMENT

The University of Colorado School for Nurses, which has been in successful operation since 1898, offers a thorough course of training to young women who desire to enter the profession of nursing. The course of instruction comprises: practical work in the wards, operating room, maternity room, nursery, laboratories, and diet kitchen; theoretical work in class; lectures, and demonstrations; dietetics; massage, and training school administration.

For admission, a certificate of moral character must be presented from two reliable persons, and a certificate of health from a physician. Evidence of four years' work in a high school, or equivalent, is required. The applicant must not be less than nineteen or more than thirty years of age. Applicants may be admitted at any time when a vacancy exists.

The applicant is received on probation for three months. During this period she receives room, board, and a reasonable amount of laundry service. Upon the completion of the probationary period, if her work has been satisfactory to the Superintendent of Nurses, she is retained as a pupil. Pupils receive \$8.00 per month. This sum is allowed for the uniform, textbooks, and other incidentals, but is not intended as wages. It is considered that the education given fully compensates for services. An annual vacation of two weeks is allowed each pupil.

Lectures begin in September and continue until June. There is the usual intermission in lectures at Christmas.

Every applicant for graduation must have completed the required practical courses, and have passed satisfactory examinations in all the required studies, and have been a regular member of the Training School for three years. For additional information, address the Superintendent of Nurses, University Hospital, Boulder, Colorado.

SCHOOL OF LAW

FACULTY AND LECTURERS

FACULTY

LIVINGSTON FARRAND, A.M., M.D., LL.D., President of the University.

JOHN D. FLEMING, A.B., LL.B., LL.D., Dean; Charles Inglis Thomson
Professor of Law; Associate Judge of the Practice Court.

JOHN CAMPBELL, A.M., LL.B., LL.D., Dean, Emeritus; Professor of
Law of Private and Municipal Corporations.

ALBERT A. REED, LL.B., Professor of Law.

JAMES F. WILLARD, Ph.D., Professor of American and English Constitutional and Political History.

FRED G. FOLSOM, A.B., LL.B., Professor of Law; Judge of the Practice Court.

WILLIAM R. ARTHUR, A.B., LL.B., Professor of Law.

LECTURERS

ROBERT S. MORRISON, Lecturer on Law of Mines and Mining.

*LUCIUS M. CUTHBERT, A.M., LL.B., Lecturer on Roman Law.

JOHN A. RINER, LL.B., Lecturer on International Law.

CHARLES D. HAYT, Lecturer on Law of Taxation.

WILLARD J. WHITE, A.M., M.D., Lecturer on Medical Jurisprudence.

JAMES W. MCCREEERY, Lecturer on Law of Irrigation and Water Rights.

JOHN E. ROBINSON, Lecturer on Bankruptcy.

HARRY S. SILVERSTEIN, A.B., Lecturer on Criminal Procedure.

HENRY E. LUTZ, LL.B., Lecturer on Equity Pleading and Practice.

ERWIN LOUIS REGENNITTER, LL.B., Lecturer on Colorado Code of Civil Procedure.

* Died, December 11, 1915.

GENERAL STATEMENT

INTRODUCTORY

The Law School was opened in September, 1892. The course of study covers three years of thirty-six weeks each. The School is a member of the Association of American Law Schools.

BUILDING

The Simon Guggenheim Law Building contains commodious classrooms, professors' rooms, a moot and practice court room, and a large room for the library. It is the gift of Honorable Simon Guggenheim, formerly United States Senator from Colorado.

THE CHARLES INGLIS THOMSON PROFESSORSHIP

Mrs. Olivia Thomson, lately deceased, has given by will for use of the School of Law the sum of \$75,000, the proceeds of which are used to support, in memory of her husband, a professorship known as "The Charles Inglis Thomson Professorship of Law."

REQUIREMENTS FOR ADMISSION

See pages 27, 31.

ADVANCED STANDING

Admission to advanced standing will be allowed to candidates if otherwise entitled to admission to the School as regular students, who satisfy the faculty that they have made sufficient progress in the study of law. See page 27.

SPECIAL STUDENTS

See page 31.

ACADEMIC YEAR

The Academic Year, 1916-1917, will begin on Monday, September 11, 1916.

FEES

For fees, see pages 34, 36.

DEGREE OF BACHELOR OF LAWS

The degree of Bachelor of Laws will be conferred on students who have passed all the examinations of the entire course. The candidate for a degree must have pursued at least one year's course as a resident student. No degree will be conferred until the candidate shall have reached the age of twenty-one years.

METHOD OF INSTRUCTION

As to methods of instruction, no subject connected with legal education has been the occasion of so much controversy. Three distinct plans are found in use in different institutions:

(a) That which may be called the textbook method, and consists of classroom recitations and quizzes upon assigned portions of a legal treatise.

(b) What is known as the "Case-System," as understood and taught at Harvard, originated there more than a quarter of a century ago, and although not in general use, has been gradually adopted to a greater or less extent in a number of the best law schools. It consists of the inductive study of carefully arranged and selected cases. It does not exclude the use of texts and commentaries on the law, by the student in his individual research, but requires no use of them for classroom work.

(c) The teaching of law by lectures has the authority of age, and has been pursued in the profession for hundreds of years, certainly as far back as the reign of Elizabeth, when there were "readers," very important officials, who gave instruction, both in the inns of court, and in the inns of chancery. This plan was pursued in this country also by Judge Wilson of Pennsylvania in 1790 and 1791, afterwards by Chancellor Kent of New York, by the Litchfield Law School, and in the early days of Harvard. At a later period it fell somewhat into disuse and seemed about to be abandoned. Recently it has been regaining lost ground.

Each of these methods has its advantages and limitations, and each its earnest advocates.

Though textbook recitations have been entirely abandoned in some of the best law schools, it may well be doubted whether, by any other means, the beginner in legal studies can so quickly acquire an accurate and systematic knowledge of legal principles as by the study of the best, and only the best, textbooks and commentaries.

Were that the sole object of the student, there could be no better method. The purpose, however, of legal study, is to make a lawyer, and the mere knowledge of legal principles falls far short of converting the law student into a lawyer. In addition, there must be a marked development in the man himself; he must learn to think independently, to weigh authorities, to deduce principles from adjudications, to carefully discriminate in their application, to appreciate the *ratio decidendi*. In no other way can he make the intellectual stride so surely as by careful study and analysis of well-selected precedents, followed by earnest classroom discussion and debate, presided over by the instructor, upon the application of the principles involved. In such work the student's mental attitude is active and largely that of an independent investigator. Each step requires thought, actual mental effort, and so results in mental development. His work is done with a sense of responsibility, and so is thorough. He becomes inured to an atmosphere of mental antagonism and criticism, and soon learns to defend his position with good temper and some skill, and perhaps, to detect the flaw in his opponent's argument. Step by step he is growing into a lawyer. Such, fairly considered, are the merits of the "Case-System." Perhaps its advantages can be best derived by a student who has been previously prepared for such work by the study of good textbooks.

The law lecture, which has so well withstood the test of time, is not to be ignored or depreciated. When delivered by a really eminent specialist, a man of magnetic and intellectual force, it brings both legal principles and reasoning home to the mind of the attentive student, with a vividness and force that stimulates his thought and vitalizes his reading. The personality of the lecturer, and the previous training of the student, are all important factors of success.

These considerations have induced the Faculty of the Colorado School of Law to adopt a scheme of instruction which involves the employment of all three systems. Much of the first year's work consists of classroom recitations from standard textbooks; some time is given to lectures; and the student makes his first trial of case study, the work being limited in amount and graduated to the progress of the class. In the second year, the bulk of the work is done with cases, though textbooks and lectures are not altogether disused. In the third year, cases are still used, but the proportions are reversed. There are a few courses of case work, textbooks being disused in the classroom, and many courses of lectures. These are

delivered by some of the most eminent members of the profession in Colorado, to students who have been prepared and seasoned by two years' hard study of textbooks and cases.

Thus the scheme of instruction, while based on the case system, is to some extent composite, and designed to secure a maximum of the excellence accompanied by a minimum of the faults of each of the three methods.

TEACHING PRACTICE

The transfer of legal education from the office to the law school has been marked by a great gain in thoroughness and fullness. But the loss of the training in practice afforded by the business of the office is much to be regretted. It provided the student a sort of law clinic, the want of which must now be supplied by the law school if his legal education is to be complete. He must not only be taught the principles of procedure in all its branches, jurisdiction, pleading, evidence, trial and appellate relief, but he should see these principles in actual practical application. To some extent he may do this by attendance upon the courts and close observation and study of the proceedings there. But, beside being a silent spectator in public courts, the student should have a court of his own, where he may devise remedies, sue out process, draw pleadings, prepare instructions, make briefs and argue questions of law and perhaps of fact, frame record entries, save exceptions, and preserve them in the record, and take the case up on error, or by appeal. To supply this need, the Regents of the University have authorized a Practice Court, presided over by a Professor of Practice. A court room, including a Clerk's office, has been provided; and the records and files are kept and the proceedings of the court conducted in conformity with usage and practice in the District Courts in Colorado.

The following, briefly stated, is the course of procedure. The second-year class and third-year class are divided into groups of four students; to each group is assigned a carefully prepared case, the facts of which are so stated as, when properly pleaded, to present an issue of law or of fact; two of the group are counsel for plaintiff and two for defendant. Counsel for plaintiff devise the remedy, sue out process, superintend its proper service and draw the complaint. Defendant's counsel may demur, move to strike out, or to make more definite and certain, or to quash the process, or plead, as they see fit. Every step, however, is subject to the supervision of the Professor of Practice, and he may require errors to be corrected at once, or

leave them in his discretion, to the attention of the opposing counsel. Every record entry occasioned by any step taken by counsel must be drafted by them and submitted to the clerk. He requires the correction of any error or insufficiency, and the entry is then made upon the record by a deputy clerk, selected from the students. When the case is at issue, it is set for trial, or hearing before the Professor of Practice sitting as Judge of the Practice Court. Members of the first-year class, when required, constitute the jury. In proper cases appeal is allowed to a court specially organized for the purpose.

It is intended that each student shall participate in the conduct to final judgment, of at least three cases, in each of the second and third years of his course.

INSTRUCTION IN OTHER DEPARTMENTS OF THE UNIVERSITY

The instruction given in other departments of the University is open also to students of the School of Law, subject to the approval of the Law Faculty. Among the numerous courses, those upon Political Economy, Geology, Mineralogy, History, Oratory and Debate, are particularly recommended for law students.

THE LIBRARY

The University Library, open to students of all departments, contains 89,718 bound volumes.

The Law Library contains several sets of English and American reports, the Reporter System, the digests, including the Century Digest, and a well-selected collection of textbooks, and is increased each year under special appropriations by the Regents for that purpose. Many of the leading law journals, American and English, are regularly taken and are on file.

The students of the School of Law, although they will not be allowed to take books from the law library of the Supreme Court of the State, at Denver, will be allowed free access during hours when the library is open.

The members of the Boulder bar have generously granted the use of their libraries to the students of the School.

THE C. I. THOMSON COLLECTION AND BEQUEST.

An accession of one thousand volumes, chiefly reports, from the library of the late Judge C. I. Thomson, the gift of his widow, has been lately made to the law library. The volumes are known and catalogued as the "C. I. Thomson Collection."

COURSE OF STUDY

SCHEDULE

It is the purpose of the School to afford such training in the fundamental principles of the English and American law as will thoroughly prepare the student to practice his profession with credit in any state or country where this law prevails.

The course of study occupies the student three years of nine months each, and is so arranged as to require a minimum of fifteen hours of actual recitations and lectures each week from each class.

FIRST YEAR.

1. CIVIL PROCEDURE AT COMMON LAW. Professor Folsom.
Martin on Civil Procedure; Ames' Cases.
2. CRIMINAL LAW AND PROCEDURE. Professor Reed.
May's Criminal Law; Derby's Cases.
Lectures at appointed hours by Mr. Silverstein.
3. CONSTITUTIONAL HISTORY OF ENGLAND. Professor Willard.
4. CONTRACTS. Professor Arthur.
Williston's Cases on Contracts.
5. ELEMENTARY LAW. Professor Folsom.
Blackstone's Commentaries.
6. PERSONAL PROPERTY. Professor Arthur.
Childs on Personal Property.
7. POLITICAL AND CONSTITUTIONAL HISTORY OF THE UNITED STATES.
Professor Willard.
8. REAL PROPERTY. Professor Arthur.
Blackstone.
9. TORTS. Professor Reed.
Cooley on Torts; Burdick's Cases on Torts.

SECOND YEAR.

1. AGENCY. Professor Fleming.
Huffcutt's Cases on Agency, 2nd Edition.
2. BAILMENTS AND CARRIERS. Professor Folsom.
Hale on Bailments and Carriers.
Selected and Colorado Cases.

3. **BILLS AND NOTES.** Professor Reed.
Norton on Bills and Notes; Moore's Cases; Colorado Negotiable Instruments Law; Selected Colorado Cases.
4. **CIVIL PROCEDURE UNDER THE CODE.** Professor Folsom.
Colorado Code of Civil Procedure and Selected Cases. Lectures also at appointed hours.
5. **DAMAGES.** Professor Reed.
Russell's Cases; Selected Colorado Cases.
6. **DOMESTIC RELATIONS.** Professor Reed.
Peck on Law of Persons; Selected Colorado Cases; Colorado Statutes.
7. **EVIDENCE.** Professor Folsom.
Thayer's Cases on Evidence; Selected Colorado Cases; Hughes on Evidence.
8. **EQUITY JURISDICTION.** Professor Folsom.
Bispham's Principles of Equity and Selected Cases.
9. **EQUITY PLEADING AND PRACTICE.** Mr. Lutz.
Lectures at appointed hours.
10. **PARTNERSHIP.** Professor Reed.
Mechem on Partnership.
11. **PLEADING AND PRACTICE UNDER THE CODE.** Professor Folsom.
This course covers the work in the Practice Court described above.
12. **REAL PROPERTY.** Professor Arthur.
Gray's Cases on Property.
Tiffany on Real Property.

THIRD YEAR.

1. **APPELLATE PRACTICE.** Professor Folsom.
Covers work in Practice Court mentioned above and lectures at appointed hours.
2. **BANKRUPTCY.** Mr. Robinson.
Lectures and selected cases.
3. **BRIEF MAKING AND USE OF LAW BOOKS.** Professor Folsom.
Covers work in Practice Court mentioned above.
4. **CONSTITUTIONAL LAW.** Professor Fleming.
Hall's Cases on Constitutional Law.

5. CONFLICT OF LAWS. Professor Fleming.
Beale's Cases on Conflict of Laws.
6. CONVEYANCING AND ABSTRACTS OF TITLE. Professor Arthur.
Lectures at appointed hours, supplemented by actual work
in title searching in County Recorder's Office.
7. CORPORATIONS. Professor Reed.
Warren's Cases on Private Corporations; Colorado Statutes,
and selected cases.
Lectures on Private and Municipal Corporations at appointed
hours by Hon. John Campbell.
8. EXTRAORDINARY REMEDIES. Mr. Regennitter.
Colorado Code Civil Procedure; selected cases.
9. INSURANCE. Professor Fleming.
Lectures at appointed hours; illustrative cases.
10. IRRIGATION, WATER RIGHTS AND RIPARIAN PRIVILEGES. Professor
Fleming.
Selected Cases; Mills' Irrigation Manual.
Mr. James W. McCreery lectures at appointed hours.
11. LEGAL ETHICS. Hon. John A. Riner.
Lectures at appointed hours.
12. MEDICAL JURISPRUDENCE. Dr. White.
Lectures at appointed hours.
13. MENTAL ALIENATION. Dr. White.
Lectures at appointed hours.
14. MINES AND MINING. Professor Fleming.
Costigan's Cases; Morrison's Mining Rights.
Mr. Morrison lectures at appointed hours.
15. MUNICIPAL CORPORATIONS. Professor Reed.
Beale's Cases on Municipal Corporations; selected Colorado
cases.
16. PLEADING AND PRACTICE UNDER THE CODE. Professor Folsom.
This course covers the work in the Practice Court described
above.
17. PROBATE PRACTICE. Professor Folsom.
Colorado Statutes.
18. REAL PROPERTY. Professor Arthur.
Gray's Cases on Property.

19. ROMAN LAW.

Lectures at appointed hours.

20. SALES. Professor Fleming.

Williston's Cases on Sales of Personal Property, 2d Edition.

21. TAXATION. Mr. Hayt.

Lectures at appointed hours.

22. WILLS, EXECUTORS AND ADMINISTRATORS. Professor Arthur.

Costigan's Cases on Wills; Colorado Wills and Administration Act, 1893, and selected cases.

COLLEGE OF PHARMACY

FACULTY

LIVINGSTON FARRAND, A.M., M.D., LL.D., President of the University.
HOMER C. WASHBURN, Ph.C., B.S. (Phar.), Dean; Professor of Pharmacy.

FRANCIS RAMALEY, Ph.D., Professor of Biology.

JOHN BERNARD EKELEY, Ph.D., Sc.D., Professor of Chemistry.

CLOUGH T. BURNETT, M.D., Professor of Bacteriology.

HARRY A. CURTIS, B.S. (Ch.E.), Ph.D., Professor of Physical Chemistry.

CHARLES F. POE, A.M., B.S. (Phar.), Instructor in Chemistry.

PAUL M. DEAN, A.M., Instructor in Chemistry.

CRAIG M. BOUTON, A.B., Instructor in Chemistry.

ARTHUR T. EVANS, A.M., Instructor in Biology.

RUSSELL N. LOOMIS, Ph.C., Assistant in Pharmacy.

CHARLES H. WELLES, Ph.C., Assistant in Pharmacy.

EXECUTIVE COMMITTEE

(Denver Division)

FERDINAND WILHELM NITARDY, Ph.G., Ph.C., Secretary.

ALFRED WILLIAM CLARK.

CHARLES J. CLAYTON, Ph.G.

GENERAL STATEMENT

ORGANIZATION

The Board of Regents in April, 1911, authorized the establishment of a School of Pharmacy, to be a division of the School of Medicine. In June, 1913, the School of Pharmacy was organized as a separate department. It was opened in September, 1911, and from the beginning has maintained a standard of requirements for entrance and graduation equal to the best schools of pharmacy in the country.

FUNCTION

The College offers thorough and practical courses in all the various subjects pertaining to pharmacy, and fits the student to pursue any of the various branches of the profession.

It is the aim of the College to cooperate with the State Board of Pharmacy and the State Pharmaceutical Association in maintaining a high standard in the profession of pharmacy.

The operation of the State and Federal food and drug laws, although but recently enacted, is creating a demand for thoroughly trained pharmacists, drug inspectors, and analysts. While the first of these demands is satisfactorily met by the average pharmaceutical graduate, the others demand a general and technical training that can not be gained short of the four-year course in pharmacy.

The obligation, imposed upon those who manufacture and dispense pharmaceuticals, by an increasing public demand for purer and better drugs and medicines, must result in their employing technically trained assistants for responsible positions which have heretofore, very frequently, been left to irresponsible and incompetent persons.

EQUIPMENT

Ample facilities are provided for carrying on the work in the College of Pharmacy. The work in Bacteriology, Botany, and Chemistry is done in the College of Liberal Arts and in the School of Medicine.

REQUIREMENTS FOR ADMISSION

See pages 27, 32.

FEES

For fees, see pages 34, 36.

LABORATORY FEES (FOR MATERIALS)*

[*Per semester, collected only from students who take the particular courses.*]

Pharmacy 2	\$15.00
Pharmacy 3	15.00
Pharmacy 4	5.00
Botany 1	2.00
Botany 2	2.00
Chemistry 2	9.00
Chemistry 3	12.00
Chemistry 4	10.00
Chemistry 7	2.00
Chemistry 8	15.00
Chemistry 9	4.00

* Twenty-five per cent. of all laboratory fees are returned to the student at the end of the semester, minus charge for breakage of apparatus and excessive use of materials.

COURSES OF STUDY

The College of Pharmacy offers three courses of study, as follows:

1. A two-year course leading to the degree Pharmaceutical Chemist, Ph.C.
2. A three-year course upon completion of which the student is given a certificate showing the work he has done. (The third year of this course is given in Denver.)
3. A four-year course leading to the degree Bachelor of Science in Pharmacy, B.S. (Phar.).

The work of the first two years in all three courses is the same, and a student may complete the Ph.C. and certificate courses in three years, or the Ph.C. and B.S. (Phar.) courses in four years.

SCHEDULE

In outlining the courses of study, it is the aim of the faculty to adhere, as nearly as may be, to the recommendations of the National Committee representing the Boards and Schools of Pharmacy of the United States, as contained in the Pharmaceutical Syllabus.

THE PH.C. COURSE AND FIRST TWO YEARS OF CERTIFICATE AND B.S. (PHAR.) COURSES

FIRST YEAR

FIRST SEMESTER.			SECOND SEMESTER.		
PHARMACY	(Phar. 1)	3	PHARMACY	(Phar. 2)	5
PHARMACOGNOSY	(Mat.Med. 1)	2	PHARMACOGNOSY	(Mat.Med. 2)	3
BOTANY	(Bot. 1)	3	BOTANY	(Bot. 2)	3
CHEMISTRY	(Chem. 1)	4	CHEMISTRY	(Chem. 3)	4
CHEMISTRY	(Chem. 2)	3			
<hr/>			<hr/>		
15			15		

SECOND YEAR

FIRST SEMESTER.

PHARMACY	(Phar. 3)	5
MATERIA MEDICA	(Mat.Med. 3)	2
CHEMISTRY	(Chem. 4)	5
CHEMISTRY	(Chem. 5)	2
CHEMISTRY	(Chem. 6)	4

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SECOND SEMESTER.

PHARMACY	(Phar. 4)	3
MATERIA MEDICA	(Mat.Med. 4)	2
CHEMISTRY	(Chem. 7)	2
CHEMISTRY	(Chem. 8)	5
CHEMISTRY	(Chem. 9)	2
BACTERIOLOGY	(Bact. 1)	2

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THE CERTIFICATE COURSE

The schedule for the first and second years of this course has already been outlined under the Ph.C. course. The purpose of the third year's work, which is to be given in Denver, is to add to the training and equipment of the graduates of the two-year course by emphasizing those phases of the drug business which can not be adequately covered in the two-year course. The work will be of a practical nature, covering the following subjects: Manufacturing Pharmacy; the Art of Buying and Selling; Invoicing; Displaying and Keeping of Stock; Advertising and Store Management. Lectures and demonstrations will supplement the work done under the immediate direction of instructors.

THE B.S. (PHAR.) COURSE

The first two years of this course are the same as outlined under the Ph.C. course. The work of the third and fourth years is drawn very largely from the science departments of the College of Liberal Arts and from the School of Medicine. The student, with the advice of the committee on registration, will be allowed considerable latitude in the choice of his work, but it must be chosen with an idea to specialization and efficiency in some particular line of pharmaceutical industry.

DESCRIPTION OF COURSES

PHARMACY

1. THEORETICAL PHARMACY. First semester. 3 h.

Lectures and recitations.

A study of the principles used in pharmacy, together with a sufficient number of demonstrations to illustrate their application, including pharmaceutical arithmetic.

2. OFFICIAL PHARMACY AND PHARMACEUTICAL TECHNIQUE. Second semester. 5 h.

Recitations and laboratory.

A study of the drugs and preparations of the United States Pharmacopœia as far as the liniments. Special reference is given to standard requirements, solubilities, tests for purity, assay methods, and dose. The student makes several preparations of each pharmaceutical type, as well as a number of non-official preparations, making in all about sixty preparations for the course.

3. CONTINUATION OF COURSE 2. First semester. 5 h.

Recitations and laboratory.

The latter half of the United States Pharmacopœia is studied as in Course 2, and about sixty preparations are made by the student.

4. DISPENSING PHARMACY. Second semester. 3 h.

A study of the prescription with special reference to physical, chemical and therapeutical incompatibilities. The student is taught to read and write prescriptions correctly. Pharmaceutical Latin is included.

MATERIA MEDICA

1. PHARMACOGNOSY. First semester. 2 h.

Lectures and recitations.

A study of the vegetable and animal drugs with special reference to identification, habitat, methods of collection and preparation for the market, medicinal constituents, official preparations and dose.

2. PHARMACOGNOSY. Second semester. 3 h.

Lectures and recitations.

With Course 1 it covers all the official, vegetable, and animal drugs, as well as the more important non-official drugs.

3. MATERIA MEDICA. First semester. 2 h.

Lectures and recitations.

This course deals with the pharmaco- and therapy-dynamics of the more important drugs, both official and non-official. The drugs are studied under the various therapeutical classes, e.g., antiseptics, cathartics, haemostatics, etc., and special reference is given to the proper forms for their administration.

4. MATERIA MEDICA. Second semester. 2 h.

BOTANY

1. ELEMENTS OF BOTANY. First semester. 3 h.

Recitations, laboratory, and illustrated lectures.

A general course in botany, dealing especially with the higher plants. Morphology, physiology, and microscopic anatomy are treated, with special attention to such structural features and chemical properties of plants as will best prepare the student for his later study of pharmacognosy.

2. ECONOMIC BOTANY. Second semester. 3 h.

Recitations, laboratory, and illustrated lectures.

A detailed study of the more important plants and plant products of economic value; grains, seeds, nuts, fruits, vegetables, textile fibers, tea, coffee, spices, crude drugs; technical microscopy; origin and improvement of cultivated plants.

BACTERIOLOGY

1. BACTERIOLOGY. Second semester. 2 h.

Lectures and recitations.

A course in general bacteriology supplemented by work in hygienic and household bacteriology.

CHEMISTRY

1. GENERAL INORGANIC CHEMISTRY. First semester. 4 h.

Lectures and recitations.

A course dealing with the laws and theories of chemistry, together with a study of the elements and their more important compounds.

2. GENERAL INORGANIC CHEMISTRY. First semester. 3 h.
Laboratory.
A detailed course of laboratory work supplementing Course 1.
3. QUALITATIVE ANALYSIS. Second semester. 4 h.
Laboratory.
A course in the identification and separation of the more common bases and acids.
4. QUANTITATIVE ANALYSIS. First semester. 5 h.
Laboratory.
A course in the methods of quantitative analysis, gravimetric and volumetric.
5. QUANTITATIVE ANALYSIS. First semester. 2 h.
Lectures and recitations.
A course in chemical calculations, together with a detailed discussion of the methods of quantitative analysis.
6. ORGANIC CHEMISTRY. First semester. 4 h.
Lectures and recitations.
A study of the methods of preparation and the properties of the more important organic compounds. Special stress is laid upon the theories underlying the subject and the proofs of the constitution of most of the substances studied.
7. FOOD CHEMISTRY. Second semester. 2 h.
Lectures and laboratory.
A course dealing with the chemistry of food products, giving practice in the official and standard methods for their analysis and the detection of adulterations.
8. DRUG ASSAYING. Second semester. 5 h.
Laboratory work.
A laboratory course giving practice in the official and standard methods for the identification, detection of adulterants, and assay of official drugs.
9. SANITARY WATER ANALYSIS. Second semester. 2 h.
Laboratory.
A course in the chemical and bacteriological examination of water, with reference to its use for drinking and household purposes.

SUMMER SESSION

FACULTY, 1916

LIVINGSTON FARRAND, A.M., M.D., LL.D., President of the University.
MILO G. DERHAM, Ph.D., Director of the Summer Session; Professor of Latin.

INSTRUCTORS FROM OTHER INSTITUTIONS

GEORGE T. AVERY, A.B., Instructor in English, Greeley High School; Psychology.
STOCKTON AXSON, A.M., Litt.D., L.H.D., Professor of English, Rice Institute, Houston, Texas.
JAMES W. BELL, A.M., Fellow in Economics, Harvard University.
SUSAN BLAKEY, A.B., B.S., Assistant in Home Economics, Cornell University.
ABRAHAM COHEN, Ph.D., Associate Professor of Mathematics, Johns Hopkins University.
BENJAMIN F. FINKEL, Ph.D., Professor of Mathematics and Physics, Drury College.
MARGARET M. GORDON, Director of the Kindergarten and Critic Teacher, College of Education, University of Chicago.
ELIJAH C. HILLS, Ph.D., Litt.D., Head Professor of Romance Languages, Colorado College.
FRANK H. HODDER, Ph.M., Professor of American History and Political Science, University of Kansas.
JOSEPH H. HOWARD, Ph.D., Professor of Latin, University of South Dakota.
EASLEY S. JONES, A.M., Instructor in English, University of Illinois.
WALTER E. McCOURT, A.M., Professor of Geology, Washington University.
LILLIAN McCracken, Supervisor of Music, Boulder Elementary Schools.
EDWIN MAXEY, M.Dip., D.C.L., LL.D., Professor of Public Law and Diplomacy, University of Nebraska.
HAROLD G. MERRIAM, A.M., Assistant Professor of English, Reed College.

LEWIS D. ROBERTS, A.B., Instructor in Chemistry, State Preparatory School.

WILLIAM S. ROE, A.M., Principal of High School, Greeley.

MARIE A. SAHM, A.M., Assistant Professor of the History of Art and Archaeology, Colorado College.

WILSON M. SHAFER, A.B., Superintendent of Schools, Cripple Creek.

FRANK D. SLUTZ, A.M., Litt.D., Superintendent of Schools, District No. 1, Pueblo.

FRANK SMITH, A.M., Professor of Systematic Zoology and Curator of the Museum of Natural History, University of Illinois.

DWIGHT E. WATKINS, A.M., Professor of Public Speaking and Instructor in English Literature, Knox College.

LAURA ROGERS WAY, Supervisor of Art, Colorado Springs Public Schools.

ULYSSES G. WEATHERLY, Ph.D., Litt.D., Professor of Economics and Sociology, Indiana University.

INSTRUCTORS FROM THE UNIVERSITY OF COLORADO

JOHN CHASE, A.B., M.D., Professor of Ophthalmology and Otology.

FRANCIS RAMALEY, Ph.D., Professor of Biology.

MELANCHTHON F. LIBBY, Ph.D., Professor of Philosophy.

JOHN BERNARD EKELEY, Ph.D., Sc.D., Professor of Chemistry.

EDWARD JACKSON, A.M., M.D., Professor of Ophthalmology.

THEODORE D. A. COCKERELL, Sc.D., Professor of Zoology.

FRANK E. THOMPSON, A.B., Director of the College of Education; Professor of Education.

ROSS C. WHITMAN, A.B., M.D., Secretary of the School of Medicine, Boulder Division; Professor of Pathology.

GRACE FLEMING VAN SWERINGEN, Ph.D., Professor of Germanic Languages.

CLOUGH T. BURNETT, M.D., Professor of Bacteriology.

LAWRENCE W. COLE, Ph.D., Director of the School of Social and Home Service; Professor of Psychology.

MELVILLE BLACK, M.D., Professor of Ophthalmology.

DAVID H. COOVER, M.D., Professor of Ophthalmology.

CARSON GILLASPIE, M.D., Professor of Anatomy.

HARRY A. CURTIS, B.S. (Ch.E.), Ph.D., Professor of Physical Chemistry.

C. HENRY SMITH, Ph.B., Librarian; Assistant Professor of Bibliography.

CARL C. ECKHARDT, Ph.D., Assistant Professor of History.

FRANK L. CLAPP, Ph.D., Superintendent for Western Colorado (University Extension Division); Assistant Professor of Education.

WILLIAM F. BAUR, Ph.B., Assistant Professor of Germanic Languages.

ARNOLD J. LIEN, Ph.D., Assistant Professor of Political Science.

JAY W. WOODROW, Ph.D., Assistant Professor of Physics.

JAMES N. ASHMORE, Director of Physical Education.

HELEN MASTERS BUNTING, Director of Physical Education for Women.

EMILY WOOD EPSTEEN, Acting Dean of Women, Summer Session;
Lecturer in Story-Telling (University Extension Division).

WILLIAM R. BRACKETT, A.B., Instructor in Physics.

PAUL M. DEAN, A.M., Instructor in Chemistry.

RUTH M. SHELLEBY, A.M., Instructor in German.

CLARIBEL KENDALL, A.M., Instructor in Mathematics.

WILLIAM H. CRISP, M.D., D.Oph., Instructor in Ophthalmology.

JAMES L. MERRILL, B.S. (C.E.), Instructor in Engineering Drawing.

WALTER F. MALLORY, B.S. (M.E.), Instructor in Mechanical Engineering.

EDWARD R. MUGRAGE, A.M., M.D., Instructor in Pathology.

MAUD E. CRAIG, A.M., Instructor in Latin and in Greek.

ARTHUR T. EVANS, A.M., Instructor in Biology.

ETIENNE B. RENAUD, A.M., Instructor in Romance Languages.

EDWIN B. PLACE, A.B., Instructor in Romance Languages.

HUGH C. PRYOR, A.M., Principal of the Boulder Training School;
Instructor in Education.

LUCIEN H. SHATTUCK, B.S. (C.E.), Instructor in Civil Engineering.

E. T. BOYD, M.D., Instructor in Ophthalmology (Summer Session, 1916).

WILLIAM C. FINNOFF, M.D., D.Oph., Instructor in Ophthalmology
(Summer Session, 1916).

JOHN S. BOUSLOG, A.B., Assistant in Pathology.

BEATRICE BOLAN, Assistant in Physical Education for Women.

FAITH E. FOSTER, A.B., Assistant Librarian.

GENERAL STATEMENT

PURPOSE AND ORGANIZATION

The Summer Session was established in 1904. The School of Mountain Field Biology at Tolland, Colorado, was opened in 1909. Courses in the Denver Division of the School of Medicine were first offered in 1912.

The Summer Session serves the needs of the following classes of students: (1) teachers and others who are not able to attend during the academic year; (2) regularly matriculated students who desire to supplement the work of the regular session; (3) students whose entrance preparation is deficient; (4) those who wish to review or extend their acquaintance with certain subjects without credit.

ADMISSION AND CREDITS

The courses are open without entrance examinations to all who can profit by them. Non-matriculated students on completion of courses receive certificates showing the amount and grade of the work accomplished. A certain number of college entrance courses are offered to those whose preparation for the University is incomplete. Regularly matriculated students are allowed, for most of the five-hour courses successfully completed, credit for two semester hours of the regular academic year; for certain courses, indicated by a †, Summer Session credit only is given. A certificate showing the amount and grade of work done in such courses is issued to those who desire it. Students who contemplate work toward an advanced degree should write to the Director of the Summer Session not later than June 1. For information regarding requirements for the Master of Arts degree in connection with Summer Session work, see page 180.

RELATION OF THE SUMMER WORK TO THE COLLEGE OF EDUCATION

The Summer Session constituency is largely made up of superintendents, principals, and teachers. In recognition of this fact there are teachers' courses in many departments and other courses conducted with a view to emphasizing educational methods and principles. Ample provision is made for those desiring to take work

counting toward the twenty hours of professional training prescribed by the Colorado Certification Law.

PUBLIC LECTURES

Open lectures are given every afternoon or evening each week, affording students the opportunity of hearing speakers of eminent attainments in educational, literary, and scientific lines.

ADVANTAGES OF CLIMATE AND SURROUNDINGS

The climate and surroundings of Boulder afford exceptionally favorable conditions for summer study and recreation. The days are never uncomfortably warm; the nights are always cool. The air is dry and invigorating. On every side the scenery is varied, grand, and beautiful.

EXERCISE AND RECREATION; EXCURSIONS

The University gymnasium, the tennis courts and athletic field are open for the use of the students of the Summer Session. The region about Boulder offers abundant opportunities for mountain climbing. There are also conducted excursions each week, for students and faculty, to points of interest.

FEES

The fee for one course is ten dollars; for two or three courses, fifteen dollars; for each course after the third, five dollars. Special fees are required for courses in the School of Mountain Field Biology at Tolland, for the Medical Courses in the Boulder Division of the Medical School and for Ophthalmology. In Chemistry the laboratory fee is three dollars for each course taken. Special laboratory fees are required in certain other subjects.

ACCOMMODATIONS

The price for good board near the Campus varies from \$4.00 to \$6.00 a week. Rooms may be obtained for \$2.00 a week. By the formation of boarding clubs or by doing light housekeeping, expenses are materially reduced. The Registrar has a list of desirable boarding and rooming places and will supply information upon application.

REDUCED RAILWAY RATES

The Colorado railways offer a rate of one and one-third fare from Colorado points to Boulder.

Low excursion rates for the summer are given by all the railways from eastern and southern points to Colorado.

Those who wish to take advantage of them are advised to apply to their local agents for official information.

SESSION OF 1916

The Thirteenth Summer Session of the University opens June 26 and closes August 5. It is desirable that students register June 23 or 24. Final examinations are held August 5 for all students who wish credit or certificates for their work.

Courses in Liberal Arts, in Medicine, and in Public Health are offered at Boulder; courses in Mountain Field Biology, at Tolland; courses in Ophthalmology, in the Denver Division of the School of Medicine.

ADDITIONAL INFORMATION

The announcement of the Summer Session will be sent upon request.

COURSES

ART

1. GREEK ART.
2. THE ART AND CULTURE OF THE ITALIAN RENAISSANCE.

See also under Drawing.

BACTERIOLOGY

1. GENERAL BACTERIOLOGY.
2. PRACTICAL BACTERIOLOGY.

BIOLOGY

(At the University)

1. GENERAL BOTANY.
- 2-3. GENERAL ZOOLOGY (Double Course).
4. NATURE STUDY (Laboratory).
5. NATURE STUDY (Lectures).
6. FLOWERING PLANTS OF BOULDER COUNTY.
7. PLANKTONOLOGY.

See also under Mountain Field Biology (at Tolland).

CHEMISTRY

1. GENERAL INORGANIC CHEMISTRY (Lectures).
2. GENERAL INORGANIC CHEMISTRY (Laboratory).
3. QUALITATIVE ANALYSIS.
4. QUANTITATIVE ANALYSIS.
5. ORE ANALYSIS.
6. ANALYSIS OF IRON AND STEEL.
7. GAS ANALYSIS.
8. ORGANIC CHEMISTRY (Lectures).
9. ORGANIC CHEMISTRY (Laboratory).
10. PHYSICAL CHEMISTRY (Lectures).
11. PHYSICAL CHEMISTRY (Laboratory).
12. TEACHERS' COURSE IN CHEMISTRY.
13. SANITARY WATER ANALYSIS.
14. MINERAL WATER ANALYSIS.

15. LABORATORY PRACTICE IN ORGANIC COMPOUNDS.
16. CHEMISTRY OF FOODS.
17. ULTIMATE ANALYSIS OF ORGANIC COMPOUNDS.
18. FOOD ANALYSIS.
19. DRUG ANALYSIS.
- 20-21. PHYSIOLOGICAL CHEMISTRY (Double Course).
22. RESEARCH COURSE IN CHEMISTRY.

DRAWING

- †1. TEACHERS' COURSE IN PUBLIC SCHOOL ART.
2. FREEHAND DRAWING.
3. MECHANICAL DRAWING.
4. DESCRIPTIVE GEOMETRY.

See also under Art.

ECONOMICS AND SOCIOLOGY

1. OUTLINES OF ECONOMICS.
2. PUBLIC FINANCE, INCLUDING THE THEORY AND METHODS OF TAXATION.
3. PRINCIPLES OF SOCIOLOGY.
4. SOCIAL PROBLEMS OF CHILDHOOD.
5. SOCIAL ASSIMILATION.

See also under Political Science.

EDUCATION

1. PRINCIPLES OF EDUCATION.
2. PRINCIPLES OF INSTRUCTION.
3. KINDERGARTEN EDUCATION.
4. PRIMARY EDUCATION.
5. ELEMENTARY EDUCATION.
6. SECONDARY EDUCATION.
7. CLASSROOM MANAGEMENT.
8. PRINCIPLES OF TEACHING.
9. PRACTICE TEACHING.
10. SCHOOL ADMINISTRATION.
11. MEASUREMENTS OF EDUCATIONAL VALUES.
12. PRACTICUM IN EDUCATION.

13. GENERAL ETHNOLOGY.

14. SOCIAL PSYCHOLOGY.

Teachers' Courses in various departments.

See also under Philosophy and Psychology.

ENGLISH LANGUAGE AND LITERATURE

1. ENGLISH COMPOSITION.

2. ADVANCED COMPOSITION.

3. AMERICAN LITERATURE.

4. TEACHERS' COURSE IN ENGLISH.

5. SHAKESPEARE.

6. ANGLO-SAXON.

7. NINETEENTH CENTURY ENGLISH POETRY.

8. THE SPIRIT OF MODERN PROSE LITERATURE AND DRAMA.

9. PHILOSOPHY OF BROWNING.

10. CLASSICAL MYTHOLOGY.

See also under Art and Reading and Public Speaking.

GEOLOGY AND GEOGRAPHY

1. PRINCIPLES OF EARTH SCIENCE.

2. FIELD GEOLOGY.

3. GEOGRAPHIC INFLUENCES.

4. CLIMATOLOGY.

5. GEOLOGIC EXCURSION (August 5 to August 29).

GERMAN

1-2. ELEMENTARY GERMAN (Double Course).

3. ELEMENTARY GERMAN, CONTINUATION.

4. ELEMENTARY COMPOSITION AND COLLOQUIAL PRACTICE.

5. TEACHERS' COURSE IN GERMAN.

6. DIE DEUTSCHE NOVELLE.

HISTORY

1. HISTORY OF THE MIDDLE AGES, 376-1300.

2. TEACHERS' COURSE IN HISTORY.

3. GERMANY SINCE 1870.

4. AMERICAN COLONIAL HISTORY.

5. THE AMERICAN REVOLUTION AND THE CONSTITUTION.

6. POLITICAL AND CONSTITUTIONAL HISTORY OF THE UNITED STATES,
1840-1861.

HOME ECONOMICS

- †1. FOODS, NUTRITION, AND HOUSEHOLD MANAGEMENT.
- †2. TEXTILES AND CLOTHING.

INTERNATIONAL RELATIONS

The courses in International Relations are offered through the cooperation of the Carnegie Endowment for International Peace.

- 1. INTERNATIONAL LAW.
- 2. AMERICAN DIPLOMACY.

LATIN AND GREEK

- †1-2. BEGINNING LATIN (Double Course).
- 3. VIRGIL, ECLOGUES AND GEORGICS.
- 4. TEACHERS' COURSE IN LATIN.
- 5. ROMAN PUBLIC LIFE.
- 6. GREEK ART.
- 7. CLASSICAL MYTHOLOGY.

LIBRARY SCIENCE AND PRACTICE

- 1. LIBRARY SCIENCE AND PRACTICE.

MANUAL TRAINING AND SHOP WORK

- †1. TEACHERS' COURSE IN WOODWORKING.
- †2. TEACHERS' COURSE IN FORGING.
- 3. WOODWORKING.
- 4. FORGING.
- †5. AUTOMOBILES.

MATHEMATICS

- 1. SOLID GEOMETRY.
- 2. TRIGONOMETRY.
- 3. COLLEGE ALGEBRA.
- 4. PLANE ANALYTIC GEOMETRY.
- 5. CALCULUS.
- 6. TEACHERS' COURSE IN MATHEMATICS.
- 7. FUNDAMENTAL CONCEPTS OF MATHEMATICS.
- 8. DIFFERENTIAL EQUATIONS.
- 9. LEAST SQUARES.
- 10-14. OTHER ADVANCED COURSES IN MATHEMATICS.

MOUNTAIN FIELD BIOLOGY

(At Tolland)

1. FIELD ZOOLOGY.
- 2-3. ECOLOGICAL PROBLEMS IN ZOOLOGY (Double Course).
4. RESEARCH PROBLEMS IN ZOOLOGY.
5. FIELD BOTANY.
- 6-7. ECOLOGICAL PROBLEMS IN BOTANY (Double Course).
8. RESEARCH PROBLEMS IN BOTANY.

See also under Biology (at Boulder).

MUSIC

- †1. TEACHERS' COURSE IN PUBLIC SCHOOL MUSIC.
- †2. TEACHERS' ADVANCED COURSE IN PUBLIC SCHOOL MUSIC.

OPHTHALMOLOGY

(At Denver, June 19 to July 29)

1. SPECIAL ANATOMY AND HISTOLOGY OF THE EYE.
2. EMBRYOLOGY AND ANOMALIES OF THE EYE.
3. PATHOLOGY, SYSTEMATIC AND LABORATORY.
4. PRINCIPLES AND ADVANCED PROBLEMS IN REFRACTION AND OCULAR MOVEMENTS.
5. GENERAL OPHTHALMIC DIAGNOSIS.
6. OPHTHALMOSCOPIC DIAGNOSIS.
7. DAILY UNIVERSITY EYE CLINIC.
8. SPECIAL LECTURES ON RELATIONS OF EYE DISEASES TO GENERAL MEDICINE AND SURGERY.

PATHOLOGY*

1. IMMUNITY.
2. CLINICAL PATHOLOGY.

PHILOSOPHY

1. HISTORY OF EDUCATION.
2. PHILOSOPHY OF BROWNING.
3. PRACTICAL ETHICS.

*The courses in Pathology are subject to withdrawal unless elected by at least six students.

PHYSICAL EDUCATION
ATHLETICS AND COACHING

- †1. FOOTBALL.
- †2. BASEBALL.
- †3. BASKETBALL.
- †4. TRACK AND FIELD ATHLETICS.

GYMNASTICS, ORGANIZED GAMES, PLAYGROUND MANAGEMENT

- 1. PLAYGROUND MANAGEMENT.
- †2. GENERAL COURSE IN PHYSICAL EDUCATION.
- †3. ADVANCED GENERAL COURSE IN PHYSICAL EDUCATION.

PHYSICS

- 1-2. GENERAL COLLEGE PHYSICS (Double Course).
- 3-4. EXPERIMENTAL PHYSICS.

Laboratory work of college grade in mechanics, heat, electricity, magnetism, sound, and light.

- 5. ELECTRICAL MEASUREMENTS.
- 6. ADVANCED ELECTRICAL MEASUREMENTS.
- 7. TEACHERS' COURSE IN PHYSICS.
- 8. DESCRIPTIVE ASTRONOMY.
- 9-14. ADVANCED COURSES IN PHYSICS.
- 15. RESEARCH COURSE IN PHYSICS.

PHYSIOLOGY AND SANITARY SCIENCE*

- 1. TEACHERS' COURSE IN ANATOMY AND PHYSIOLOGY.
- 2. PUBLIC HEALTH.

POLITICAL SCIENCE

- 1. GENERAL PRINCIPLES OF POLITICAL SCIENCE.
- 2. EUROPEAN GOVERNMENTS.
- 3. CURRENT GOVERNMENTAL TOPICS.

See also under Economics and Sociology.

* For an outline of courses leading to certificate in Public Health, see page 266.

PSYCHOLOGY

1. GENERAL PSYCHOLOGY.
2. CHILD PSYCHOLOGY.
3. EXPERIMENTAL PSYCHOLOGY.
4. PSYCHOLOGY OF ADVERTISING.
5. RESEARCH COURSE IN PSYCHOLOGY.
6. SOCIAL PSYCHOLOGY.

PUBLIC HEALTH

For an outline of courses leading to a certificate in Public Health see page 266.

PUBLIC SPEAKING AND READING

1. PRINCIPLES OF PUBLIC SPEAKING AND READING.
2. PRACTICAL PUBLIC SPEAKING.
3. LITERARY INTERPRETATION.

ROMANCE LANGUAGES

FRENCH

- 1-2. BEGINNING FRENCH (Double Course).
3. INTERMEDIATE COURSE.

ITALIAN

1. BEGINNING ITALIAN.

SPANISH

- 1-2. BEGINNING SPANISH (Double Course).
3. INTERMEDIATE COURSE.
4. SPANISH DRAMA OF THE NINETEENTH CENTURY.

STORY TELLING

- †1. STORY-TELLING AND CHILDREN'S LITERATURE.

SURVEYING AND MECHANICS

- 1-2. SURVEYING (Double Course).
3. TECHNICAL MECHANICS—STATICS.
4. HYDRAULICS.

THE BOULDER TRAINING SCHOOL

STATE PREPARATORY SCHOOL

The Boulder Training School is conducted by the College of Education of the University of Colorado as an ungraded school, six weeks, June 26 to August 5. Instruction is offered for pupils of any grade, from the first to the twelfth, in all the usual elementary and high-school subjects. For the younger children, three to seven years of age, there is a Montessori School, conducted, as far as is feasible, in the open air. The fees for Montessori, grade, and high-school pupils vary from \$1.00 to \$5.00 according to the grade and amount of work taken. For those who expect to teach, there are courses especially designed to prepare for teachers' examinations.

UNIVERSITY EXTENSION DIVISION

FACULTY

- LIVINGSTON FARRAND, A.M., M.D., LL.D., President of the University.
LORAN D. OSBORN, Ph.D., Director; Professor of Sociology.
FRANK L. CLAPP, Ph.D., Superintendent for Western Colorado; Assistant Professor of Education.
C. HENRY SMITH, Ph.B., Librarian of the University; Secretary of the Bureau of Library Extension.
ELMORE PETERSEN, A.B., Secretary of the Bureau of Vocational Instruction; Instructor in Business Administration.
ARTHUR E. GILMAN, A.B., Secretary of the Bureau of Community Welfare; Extension Instructor.
HELEN G. MARTIN, A.M., Office Secretary; Extension Instructor.

The Faculty includes also Professors and Instructors in the various University departments who give extension courses or lectures, together with special Extension Instructors appointed to conduct classes in various centers throughout the State.

NON-RESIDENT INSTRUCTIONAL STAFF

- JAMES F. KEATING, A.M., *Pueblo*, Extension Instructor in Education.
FRANK D. SLUTZ, A.M., *Pueblo*, Extension Instructor in English Literature.
KIRK E. WALLACE, *Pueblo*, Extension Instructor in Playground Supervision.
C. I. KERR, A.M., *Pueblo*, Extension Instructor in Sociology.
JASPER T. MOSES, A.M., *Pueblo*, Extension Instructor in Spanish.
JAMES H. COWLES, A.B., *Denver*, Extension Instructor in Life Insurance.
GEORGIA L. FIELD, Ph.D., *Mankato, Minnesota*, Extension Instructor in Comparative and English Literature.
LOLITA SNELL, A.M., *Akron*, Extension Instructor in Mathematics.
EMILY WOOD EPSTEEN, *Wiggins*, Lecturer on Story-Telling and Children's Literature.

GENERAL STATEMENT

The Extension Division aims to make the campus of the University coextensive with the State, in keeping with the new idea that a State university exists for all the people and not for a favored few alone.

The various departments of the University have much material that can be of great value in the development of the resources of the State. Particularly is this true in connection with the new problems of community welfare. The Extension Division endeavors to connect the University departments with the people who wish to utilize these resources. This is done through two main departments and various administrative bureaus, as appears in the following outline of Extension activities:

I. Department of Instruction:

1. Bureau of Correspondence-Study.
2. Bureau of Academic Instruction.
3. Bureau of Vocational Instruction.

II. Department of Public Service:

1. Bureau of Lectures and Visual Instruction.
2. Bureau of Community Welfare.
3. Bureau of Library Extension.
4. Bureau of Publications.

DEPARTMENT OF PUBLIC SERVICE

The Department of Public Service deals with those more general phases of public education and community welfare which can not be adequately met by courses of formal instruction.

BUREAU OF LECTURES AND VISUAL INSTRUCTION

Lectures are arranged by members of the University faculties, either in courses or as single addresses. These cover a wide range of subjects, and endeavor to present scholarly knowledge in popular form. Stereopticon slides of an educational character are furnished to public schools, at cost of transportation, for use in the classroom and in entertainments that are of interest to both pupils and parents.

BUREAU OF COMMUNITY WELFARE

Assistance is rendered to communities throughout the State, upon request, in solving the new problems that have arisen in our complex modern life. The Secretary of the Bureau of Community Welfare devotes his entire time to this work. Community Welfare Conferences are held, involving a preliminary study or social survey of the town and a conference program of two or three days' duration participated in by men from the University and local speakers. Information and assistance are given in connection with public health and sanitation. Suggestions are made, when desired, for the guidance of various clubs and organizations, and outline programs are furnished. A special bulletin, published by the Bureau of Community Welfare, will be sent upon request.

BUREAU OF LIBRARY EXTENSION

Through the University Library, books and package libraries are sent to high schools, clubs, and individuals, so far as the resources of the library will permit, for use in debating contests and in the discussion of subjects of current interest. Inquiries for information also receive prompt attention and are answered from the resources of the library and the various departments of the University. Address, University of Colorado Library.

BUREAU OF PUBLICATIONS

Bulletins are published from time to time making available to the public the results of investigations carried on by instructors in the University.

DEPARTMENT OF INSTRUCTION

The Department of Extension Instruction offers formal courses of study by correspondence and in classes, to such persons as wish to engage in systematic study without leaving home or giving up their regular occupations.

Both academic instruction and vocational courses are given. The academic courses cover a large part of the regular curriculum of the College of Liberal Arts, and, in general, receive credit which applies toward a university degree. Courses in secondary education are also offered, particularly for the benefit of those beyond the high-school age or living where a high school is not accessible. (Bureau of Academic Instruction.)

The vocational courses are intended more especially for young men and women in offices, stores and industrial life who desire to increase the value of their work and to gain a better understanding of its correlation with the business world in general. The daily task and the study of the educational principles underlying it thus supplement each other. The vocational courses are granted recognition by means of a certificate. (Bureau of Vocational Instruction.)

A certificate course in Public Health is offered, partly by Extension and partly in the Summer Session. (See page 266.)

CORRESPONDENCE STUDY

TEACHING BY MAIL.—The practicability of teaching by mail has been amply demonstrated. While this method loses much in comparison with resident study, yet there are compensations in the individual character of the work. Each student studies and recites the entire lesson, cultivates the habit of discrimination, and learns to assimilate what he reads.

UNIT OF WORK AND UNIVERSITY CREDIT.—When the work given by correspondence is of University grade and college entrance requirements have been fulfilled, it is granted University credit of equal value to that done in residence. A course that consists of forty assignments is granted five hours' credit toward the 122 hours

required for the A.B. degree; a course of thirty-two assignments, four hours' credit; a course of twenty-four assignments, three hours' credit; and a course of sixteen assignments, two hours' credit. It is estimated that a five-hour course of forty lessons will require a minimum of one hour of study a day, six days in the week, for forty weeks. The unit of work is thus a course divided into eight assignments, involving one hour's credit, and requiring about one hour's study a day for a period of eight weeks. One-fourth of the work for the A.B. degree may be done in the Extension Division.

WORK, PARTLY BY UNIVERSITY EXTENSION, FOR MASTER OF ARTS DEGREE.—For information regarding requirements for the Master of Arts degree in connection with University Extension Work, see page 181.

INSTRUCTORS.—Correspondence-study is carried on under the immediate supervision of the members of the University faculty.

METHOD.—The student who desires to undertake correspondence-study should enroll directly with the University Extension office upon blanks furnished for that purpose on application. After the enrollment has been duly completed, assignments of lessons prepared by the instructors will be sent to the student, together with directions concerning textbooks, the doing of the work, the answering of the questions, the returning of the papers, and such other details as may be deemed helpful. The student may begin his course at any time and proceed with the work as fast as he wishes. An examination is given at the end of the course.

EXPENSES.—The fees for correspondence-study are made as low as the expenses of standard work will warrant. The student meanwhile continues to receive the income from his business or profession. The fee for each correspondence course of forty lessons is \$20.00; for a shorter course the fee is proportionately less—that is, a three-hour course (twenty-four lessons), is \$12.00, and a two-hour course (sixteen lessons), \$8.00. The unit of reckoning is a course of eight assignments, involving one hour's credit, and costing \$4.00. Where several courses are taken at one time, there is a reduction of 25 per cent. on all fees in excess of \$20.00. The fees are payable in advance, and are not refunded if the student drops the work, unless in exceptional cases. The textbooks are purchased by the students themselves, as is done by resident students. Reference books are loaned by the University Library so far as its resources will permit.

STUDY CLASSES

ORGANIZATION AND CREDIT.—University Extension Study-Classes are organized in places where a group of students may wish to study the same course together. Usually the class holds a double-period session (100 minutes) each week during the school year, or for a single semester, meeting in the evening or on Saturday, as may be preferred.

Upon the completion of a course in this way and the passing of a satisfactory examination, the work will receive the same credit as a similar two-hour course taken at the University, namely, two hours for a semester or four hours for the academic year. If the class prefers, sessions may be held less frequently than once a week, or for a shorter period than 100 minutes; in which case credit will be allowed in proportion.

In short, the effort is made to drop a University class down into a community, and to have the work approximate as closely as possible that taken in residence—in the quality of work done, the conduct of the courses, the time required of the student for preparation, and the amount of credit given.

INSTRUCTORS AND CLASS LEADERS.—The classes are conducted under the supervision of the heads of the appropriate departments at the University, but with different arrangements in different places so far as local leadership is concerned:

1. With a University Instructor. When the class is located in a town near the University or in a section of the State where a member of the faculty is maintained by the University, the work may be conducted directly by a University instructor, who meets the class every week or periodically as may be arranged.

2. With a Local Instructor. When the class is too far away to be reached by an instructor from the University, a local instructor may be appointed on the Extension faculty, if one is available in the subject desired by the class. The qualifications of the local instructor must be, in general, the same as those required of a resident instructor. The local instructor conducts the work in direct cooperation with the head of the regular department at the University.

3. With a Class Leader. Often a group of students will wish to unite for study where no instructor is available in the special

subject desired. In this case, one of the members of the class is appointed class leader, and the course is conducted directly with the University by correspondence. Lesson assignments are sent to the class every week from the University through the leader, by whom the written papers of the members are returned periodically as may be arranged. It is regular correspondence work, but with the entire group. This plan makes possible the organization of a class anywhere in almost any correspondence course.

FEES.—The fees for class instruction have been fixed by the Regents of the University at \$8.00 per student for a class meeting weekly for a double period throughout one school semester (two credits), or \$16.00 for such a class conducted during the school year (four credits); or in the same proportion for classes meeting less frequently or for a shorter recitation period.

An exception is made, however, in the case of classes in academic subjects, primarily for public school teachers, conducted by local Extension instructors and leaders. In such classes, meeting weekly for a double period, the fee for each student is \$5.00 for a semester, or \$10.00 for the school year, and in the same proportion for less work or more.

EXTENSION COURSES

BIOLOGY

1. BIOLOGICAL THEORIES.
2. SANITARY SCIENCE.
3. ELEMENTS OF ZOOLOGY.
4. ECONOMIC ZOOLOGY.
5. ICHTHYOLOGY.
6. ENTOMOLOGY.
7. PALEOBOTANY.
8. MOLLUSCA.
9. ASSIGNED READINGS IN BIOLOGY.

BUSINESS

1. BUSINESS ORGANIZATION AND ADMINISTRATION.
2. RETAIL SELLING AND STORE MANAGEMENT.
3. ADVERTISING.
4. OFFICE MANAGEMENT AND EFFICIENCY.
5. ACCOUNTANCY.
6. BUSINESS LAW.
7. BUSINESS ECONOMICS.
8. MONEY AND BANKING.
9. INSURANCE.

CHEMISTRY

Work by special arrangement.

ECONOMICS

1. ECONOMIC RESOURCES AND COMMERCIAL GEOGRAPHY.
2. ECONOMIC HISTORY OF THE UNITED STATES.
3. PRINCIPLES OF ECONOMICS.

EDUCATION

1. PRINCIPLES OF EDUCATION.
2. PRINCIPLES OF TEACHING.
3. ANTHROPOLOGY.
4. ETHNOLOGY.

5. SOCIAL PSYCHOLOGY.
6. EDUCATION AND SOCIETY.
7. CHILD STUDY.
8. ORGANIZATION AND ADMINISTRATION OF SCHOOLS.
9. EDUCATIONAL THEORY.
10. PRACTICUM IN EDUCATION.
11. SCHOOL SURVEYS.

ENGINEERING (ELECTRICAL)

1. ELEMENTS OF ELECTRICITY AND DIRECT-CURRENT MACHINERY.
2. ALTERNATING CURRENTS AND ALTERNATING-CURRENT MACHINERY.
3. CENTRAL ELECTRIC STATIONS.
4. ELECTRIC WIRING.
5. TELEPHONES AND TELEPHONE APPARATUS.

Graduate courses arranged for engineering alumni.

ENGINEERING (MECHANICAL)

1. ENGINEERING MATHEMATICS.
2. ENGINEERING MATERIALS.
3. SHORT COURSE IN DRAWING.
4. BOILERS.
5. STEAM ENGINES.

Graduate courses arranged for engineering alumni.

ENGLISH LANGUAGE

1. COMPOSITION I.
2. COMPOSITION II.
3. SHAKESPEARE.

ENGLISH LITERATURE

1. HISTORY OF ENGLISH LITERATURE.
2. AMERICAN AUTHORS.
3. SHAKESPEARE: ALL THE PLAYS.

FRENCH

1. BEGINNERS' COURSE (Classes).
2. PROSE COMPOSITION AND CONVERSATION (Classes).
3. FRENCH LITERATURE (Classes).
4. ADVANCED PROSE COMPOSITION (Correspondence or in Classes).

GERMAN

1. COMPOSITION (Elementary).
2. ADVANCED GERMAN COMPOSITION.
3. THE GERMAN NOVELLE.

GREEK

1. ELEMENTARY COURSE.
2. CLASSICAL MYTHOLOGY.

HISTORY

1. MEDIÆVAL HISTORY.
2. MODERN HISTORY.
3. EUROPE SINCE 1815.
4. ENGLISH HISTORY TO 1558.
5. ENGLISH HISTORY 1558 TO THE PRESENT TIME.

LATIN

1. LATIN PROSE.
2. LATIN LITERATURE.
3. ROMAN HISTORY.
4. MARTIAL AND PLINY.

MATHEMATICS

1. COLLEGE ALGEBRA.
2. PLANE TRIGONOMETRY.
3. PLANE AND SPHERICAL TRIGONOMETRY.
4. SOLID GEOMETRY.
5. PLANE ANALYTIC GEOMETRY.
6. DIFFERENTIAL CALCULUS.
7. INTEGRAL CALCULUS.
8. DIFFERENTIAL EQUATIONS.
9. ADVANCED COLLEGE ALGEBRA.
10. HISTORY OF MATHEMATICS.

MUSIC

1. HARMONY.

PHILOSOPHY

1. HISTORY AND PHILOSOPHY OF EDUCATION.
2. ETHICS.
3. HISTORY OF PHILOSOPHY.
4. LOGIC.

PHYSICS

1. THEORETICAL MECHANICS—STATICS.
2. THEORETICAL MECHANICS—DYNAMICS.
3. DESCRIPTIVE ASTRONOMY.

PSYCHOLOGY

1. GENERAL PSYCHOLOGY.

PUBLIC HEALTH

See below.

SANITARY SCIENCE

See Biology.

SOCIOLOGY

1. PRINCIPLES OF SOCIOLOGY.
2. SOCIAL PROBLEMS.
3. THE PSYCHOLOGY OF SOCIAL CONTROL.

SPANISH

1. BEGINNERS' COURSE (Correspondence or in Classes).

STORY-TELLING

1. STORY-TELLING AND CHILDREN'S LITERATURE.

SECONDARY EDUCATION

Arranged upon application.

CERTIFICATE COURSE IN PUBLIC HEALTH*

FIRST YEAR.

READING AND CORRESPONDENCE COURSES.

HYGIENE AND PREVENTIVE MEDICINE.

ELEMENTS OF ZOOLOGY.

GENERAL BACTERIOLOGY.

SUMMER SESSION COURSES.

GENERAL BACTERIOLOGY—LECTURES AND LABORATORY.

PLANKTONOLOGY—LECTURES AND LABORATORY.

* The tuition for courses leading to the Certificate in Public Health, including Summer Session fees, is \$50.00 per year.

SECOND YEAR.

READING AND CORRESPONDENCE COURSES.

EPIDEMIOLOGY AND INFECTIOUS DISEASES.

WATER SUPPLY.

SEWERAGE AND METHODS OF SEWAGE DISPOSAL.

SUMMER SESSION COURSES.

ADVANCED BACTERIOLOGY—WATER, MILK, ETC.

WATER ANALYSIS.

THIRD YEAR.

READING AND CORRESPONDENCE COURSES.

PUBLIC HEALTH PROBLEMS.

PUBLIC HEALTH LAW.

PUBLIC HEALTH ADMINISTRATION.

STATISTICS, THEIR THEORY AND APPLICATION.

SUMMER SESSION COURSE.

PUBLIC HEALTH. Laboratory Methods.

FOURTH YEAR.

READING AND CORRESPONDENCE COURSES.

ANALYSIS AND PREPARATION OF LECTURES AND PAPERS UPON
HEALTH.

HYGIENE AND SANITATION FOR LAY AUDIENCES.

TUBERCULOSIS AND OTHER SPECIAL PROBLEMS.

MEDICAL EXAMINATION OF SCHOOLS AND SCHOLARS.

CORRECTION OF DEFORMITIES AND DEVELOPMENTAL DEFECTS.

SUMMER SESSION COURSE.

PUBLIC HEALTH. Field Work.

DEGREES CONFERRED

JUNE 9, 1915

DOCTOR OF LAWS (honoris causa)

Frederick James Eugene Woodbridge, Johnsonian Professor of Philosophy and Dean of the Graduate Faculties, Columbia University.
William Frederick Slocum, President of Colorado College.

MASTER OF ARTS

Charles Sidney Bluemel, A.B. 1914, University of Colorado.
Kirby Vernon Bowen, A.B. 1913, Friends University.
Duncan Ellsworth Clark, A.B. 1913, Drake University.
Arthur Thompson Evans, A.B. 1912, University of Illinois.
Ross Leslie Heaton, A.B. 1914, University of Colorado.
Lorenzo Loudon Johnson, B.S. 1909, Rio Grande College.
Estelle Marie Kyle, A.B. 1913, University of Colorado.
Helen Gertrude Martin, A.B. 1914, University of Colorado.
Lloyd Wynn Mints, A.B. 1914, University of Colorado.
Allen Moore, B.S. 1911, Oklahoma A. and M. College.
Earl Halstead Morris, A.B. 1914, University of Colorado.
Mabel Parish, A.B. 1914, University of Colorado.
Abel Etienne Bernardeau Renaud, A.B. 1905, University of Paris.
William Steadman Roe, A.B. 1905, University of Colorado.
Grant Van Hoose, A.B. 1903, University of Utah.

CIVIL ENGINEER

Ivan Charles Crawford, B.S. (C.E.) 1912, University of Colorado.
Charles Stillman Sperry, A.B., B.S. (C.E.) 1911, University of Colorado.

ELECTRICAL ENGINEER

Lynn Ruliff Leonard, B.S. (E.E.) 1912, M.S. 1913, University of Colorado.

MECHANICAL ENGINEER

Frank Stanley Bauer, B.S. (M.E.) 1911, University of Illinois.
James Dudley Skinner, Ph.B. 1894, Yale University.

MASTER OF SCIENCE IN PUBLIC HEALTH

Joseph Max Shapiro, M.D. 1914, University of Colorado.

DOCTOR OF OPHTHALMOLOGY

Joseph Daly, M.D. 1897, University of Arkansas.
Christian Henry Dewey, M.D. 1907, George Washington University.
Edward Everett Edmondson, M.D. 1909, Northwestern University.
William Robert Fagin, M.D. 1908, Vanderbilt University.
William Chris Finnoff, M.D. 1912, University of Colorado.

DOCTOR OF MEDICINE

Glaister Herod Ashley
 Thomas Ernest Atkinson
 George William Bancroft
 May Tower Bigelow

Paul Wiles Carmichael
 John Samson Chase
 Claud Simpson Guthrey
 Charles A. St.Clair

BACHELOR OF LAWS

Frank De Witt Allen
 Harry Frederick Anderson
 Thomas Cooley Ashley
 Richardt Miles Boeke
 Charles Linton Doughty, Jr.
 Rudolph R. B. Johnson
 Carl Albert Kaiser
 Irwin Merrill Lowe
 Bentley Matthews McMullin

Floyd Meyers
 Norman Ramsay Morison
 Clara Ruth Mozzor
 Allen Cleveland Phelps
 Nathaniel Peter Rathvon
 Margaret Howell Reed
 Raymond Lee Sauter
 George Hamlin Shaw

BACHELOR OF ARTS

Nellie Marie Alter
 Marion Andrew
 Edith Merle Arasmith
 *George True Avery
 Mildred Lee Bailey
 David Dean Barrett
 John Dickson Beebe
 Roger Kane Bent
 Carl Mansfield Billings
 Philip Sheridan Borden
 Nina Audrey Brown Bouslog
 Winifred Belle Brammer
 Clara Adelia Brewer
 Edith Navarre Brewster
 Anna Effel Bryce
 *Robert Martin Burns
 Musa Calkins
 †Claude M. Campbell
 Lloyd Hubbard Campbell
 *Mabel Ann Canter
 *Eleanore Susan Casey
 Dena Claff
 *Jeane Beryl Cleveland
 Benjamin David Cornell
 Alice Elizabeth Louise Cornish
 Hilda Counts
 Edith Helen Culver
 George Clarence Davis
 Jasper Myrton Dickinson
 *Arthur Jerome Dickson
 *Flora Mable Divelbiss
 Paul Alfred Douden
 *Beatrice Barbara Drach
 James Terry Duce
 Anna Almeda Duff
 George Kinney Dunklee
 *Ruth Ethel Dunsmoor
 Albert Verne Echternach
 Adeline Hamilton Eddy
 Sophia Ellsberg

Anna Louise Ennis
 *Anna Belle Farnsworth
 Valentine Benjamin Fischer
 Vera Fisher
 *Marguerite Marie Flynn
 Edward Morris Freeman
 *Eva Allen Freeman
 Harry A Gammon
 *Gertrude Isabel Gates
 Paul Victor Greedy
 Canzada Willard Hampton
 Ina Elizabeth Harper
 Millett Henshaw
 Myron Collins Herrick
 Theodore Gustavus Hesnard
 *Lelia Mae Hinkley
 William Warren Howe
 Ralph Hubbard
 *Mattie Neva Hunt
 John Albert Jernigan
 Leonard Charles Jones
 *Ethel Therese Keen
 Donald Campbell Kemp
 William Keith Kerman
 Margaret Evalyne Kifer
 James Herman Klingler
 Evelyn Elizabeth Knight
 Leon Edward Lavington
 Paul Le Brock Littler
 Franklin Joseph McDonald
 *Mary Virginia McFarland
 *Goldie Leatha McGlothlen
 *Roy Gabriel McRae
 William Henry Malone, Jr.
 *Lucye Neal Martin
 Jessie Elizabeth May
 Vida Helen Merrill
 Lewis Israel Miller
 Mary Frances Miller
 Katharine Maud Morley

*These candidates received also the Bachelor's Diploma in Education.

†These candidates received also the Bachelor's Diploma in Commerce.

Note—Mary Ethel Ball, A.B. 1914, received the Bachelor's Diploma in Education.

*Helen Rose Murch
 Dorothy May Nicholson
 Forrest Clifton Northcutt
 *Shirley Louise Penny
 Cecil Herbert Peret
 *Katheryne Irene Phillips
 *Cornelia Carolynne Porter
 Morris Printz
 Lillian Elizabeth Pulliam
 *Gertrude Rennie
 Florence Irene Rice
 Lewis Dillon Roberts
 Stephen Gainsford Rothwell
 Raymond Mirick Sandhouse
 *George J. Saunders
 Carrie Almira Sewell
 Burtis Britan Hunt Shattuck
 *Thomas Few Shipman
 *Zula Gordon Simmons
 Opal Slater
 William Wesley Sloan
 Robert Gunson Smith
 *Alice Elizabeth Springer
 Elsie Christine Staley

William Peter Stein
 †Archibald Herbert Stockder
 Charles Walker Streamer
 Cipriana Subejano
 Edward Thomas Taylor, Jr.
 Dorothy Terwilliger
 *Nello Alberta Tongue
 *Margaret Tourtellotte
 *Ethel Irene Trezise
 Clara Marie Tuchock
 Edna Helen Tuchock
 Fred Lee Ullery
 Enid M. Van Alstine
 Ruth Lorraine Walsh
 Pattison Albert Waters
 *Ruth Jocelyn Wattles
 Bessie Althea Webster
 Leah Weyerbacher
 Edna Ruth White
 Frances Edna Williams
 *Matilda Louise Woodard
 John Jasper Yowell
 *Grace Emily Zorn

BACHELOR OF SCIENCE (C. E.)

Robert Hawthorn Canfield
 Newell Charde
 Guy Ketterman Dohner
 Samuel Judelovitz
 Richard Wander Lindsay
 Elbert Kerr McNeil

John Siemon Means
 Lesley Coolidge Paul
 Frank Harrison Prouty
 Ora Clarence Steiner
 Edward Divine White
 Paul Brooks Whitney

BACHELOR OF SCIENCE (E. E.)

Milton Nachman Bergheim
 Philip Sheridan Borden
 Harrison Smith Condit
 John Jacob Flach
 Marvin Clay Griffin
 Charles Ramsdell Lynch
 William Edgar Martin

Charles Siegmund Miller
 Alfred David Moreland
 George Andrew Nelson
 Ralph Turner Robison
 Carl Axel Soderstrom
 Thornton Maltby Victory

BACHELOR OF SCIENCE (M. E.)

Laban Jenkins Brady
 Lawrence Barrett Carnahan
 Ben Christian
 Stanley Shields Cooke
 James Orville Craig
 Dean Holden Davis

Horace Lippincott Harrison
 Phillip Henry McCary
 Maurice Martensen
 Paul Vanderlip Smith
 Edward Smith Walker

BACHELOR OF SCIENCE (Ch. E.)

Frank Ferdinand Beverly
 John Edward Conley
 Irving George Gates

Richard Henry Henderson
 Karl Wallace Shimeall

BACHELOR OF SCIENCE IN PHARMACY

Howard Arthur DeMarais

Armin Nathan Rosenblum

PHARMACEUTICAL CHEMIST

Howard Arthur DeMarais
 Russell Newton Loomis
 George Elwood Mallory

John Lewis Roberts
 Charles Harold Welles

CATALOGUE OF STUDENTS

GRADUATE SCHOOL

NAME	RESIDENCE
Banta, Clifford, A.B.....	Marshall, Indiana
Wabash College, 1915.	
Chemistry, Geology.	
Beverly, Frank Ferdinand.....	Boulder
University of Colorado, 1915.	
Chemistry, Mechanical Engineering.	
Boswell, Fannie Judith, A.B., A.M.....	Boulder
University of Colorado, 1910.	
Comparative and English Literature, English Language.	
Bouslog, John Samuel, A.B.....	Denver
University of Colorado, 1914.	
Bacteriology, Chemistry.	
Bouton, Craig Miller, A.B.....	Boulder
University of Colorado, 1904.	
Chemistry, Mathematics.	
Braden, Samuel Ray, A.B.....	Derby, Kansas
College of Emporia, 1910.	
Sociology, Economics, History.	
Brammer, Winifred Belle, A.B.....	Coon Rapids, Iowa
University of Colorado, 1915.	
History, Political Science.	
Brown, Frank Logan, B.S. (C.E.).....	Lawrence, Kansas
University of Colorado, 1911.	
Civil Engineering, Mechanical Engineering, Electrical Engineering.	
Burns, Robert Martin, A.B.....	Olathe
University of Colorado, 1915.	
Chemistry, Mathematics.	
Christian, Jacob William, B.S. (M.E.).....	Boulder
University of Colorado, 1913.	
Craig, Maud Elizabeth, A.B., A.M.....	Boulder
University of Colorado, 1912, 1914.	
Latin.	
Curtis, Gladys Constance, A.B.....	Castle Rock
University of Colorado, 1914.	
Education, Psychology.	
*Daly, Joseph, M.D.....	Abilene, Texas
University of Arkansas, 1897.	
Ophthalmology.	
*Dewey, Christian Henry, A.M., M.D.....	Washington, D. C.
Western Normal College, 1909; George Washington University, 1907.	
Ophthalmology.	
Downing, Alice, A.B., A.M.....	Aspen
University of Colorado, 1911; University of Chicago, 1913.	
English Language, English Literature.	
Duce, James Terry, A.B.....	Boulder
University of Colorado, 1915.	
Mineralogy, Chemistry, Geology.	

*Registered in 1914-1915, after the publication of the Catalogue.

NAME	RESIDENCE
Dugan, Ethel R., A.B., A.M.....	Hazleton, Pennsylvania Smith College, 1910; Leland Stanford Junior University, 1915.
Eckel, Clarence, B.S. (C.E.).....	Denver University of Colorado, 1914. Civil Engineering.
Edgcomb, Rex Edward, B.S. (C.E.).....	Corvallis, Oregon Iowa State College, 1911. Civil Engineering.
*Edmondson, Edward Everett, M.D.....	Mount Vernon, Illinois Northwestern University, 1909. Ophthalmology.
Ellsberg, Harry, B.S. (C.E.).....	Lincoln, Nebraska University of Colorado, 1913. Civil Engineering.
Evans, Arthur Thompson, A.B., A.M.....	Boulder University of Illinois, 1912; University of Colorado, 1915.
*Fagin, William Robert, M.D.....	Booneville, Mississippi Vanderbilt University, 1908. Ophthalmology.
Fairchild, Addie May, A.B.....	Benton City, Missouri University of Colorado, 1914. Psychology, Philosophy.
Farrington, Florence, A.B., A.M.....	Boulder University of Colorado, 1913, 1914. Germanic Languages, French.
*Finnoff, William Chris, M.D.....	Denver University of Colorado, 1912. Ophthalmology.
Flach, John Jacob, B.S. (E.E.).....	Boulder University of Colorado, 1915. Electrical Engineering.
Freeman, Eva Allen, A.B.....	Monte Vista University of Colorado, 1915. Psychology, Education, Sociology.
Gates, Gertrude Isabel, A.B.....	Boulder University of Colorado, 1915. Germanic Languages, French.
Greene, Adelbert Jay.....	Boulder Physics, Mathematics, Chemistry.
Grundhoeffer, Eduard Franz, B.S. (M.E.).....	Boulder Pennsylvania State College, 1914. Mechanical Engineering.
Hayes, William Duke.....	Jacksonville, Florida Special Student in Public Health.
Hitchcock, Wilbur Arthur, B.S. (C.E.).....	Laramie, Wyoming University of Wyoming, 1912. Structural Engineering, Reinforced Concrete.
Huber, Hugo Albert.....	Boulder Chemistry, Physics.
Hutsinpillar, Florence Winsor.....	Boulder Wellesley College, 1904. Sociology.
Jones, Leonard Charles, A.B.....	Boulder University of Colorado, 1915. Physics, Mathematics, Chemistry.

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NAME	RESIDENCE
Kendall, Claribel, A.B., A.M.	Boulder
University of Colorado, 1912, 1914. Mathematics.	
Lauffer, Charles Alpheus, A.B., M.D.	Wilkesburg, Pennsylvania
Franklin and Marshall College, 1900; University of Pennsylvania, 1905.	
Leonard, Helen Arvilla, A.B.	Binghamton, New York
Vassar College, 1909. Botany, Chemistry.	
Lewis, Thompson Darnaby, A.B.	Boulder
Georgetown College, 1904. History, Economics.	
Lynch, Charles Ramsdell, B.S. (E.E.)	Denver
University of Colorado, 1915. Electrical Engineering.	
McGrath, Florence Kathleen, A.B.	Boulder
Leland Stanford Junior University, 1915.	
McKeehan, Irene Pettit, A.B.	Minneapolis, Minnesota
University of Minnesota, 1903. English Language, Literature, History.	
Mallory, Walter Frank, B.S. (M.E.)	Boulder
University of Colorado, 1914. Mechanical Engineering.	
Merrill, James Lynn, B.S. (C.E.)	Boulder
University of Colorado, 1913.	
Morgan, John W., M.D.	Denver
Kentucky School of Medicine, 1890. Public Health.	
Moyle, Matt William, B.S. (M.E.)	Boulder
University of Colorado, 1914.	
Orris, Marian Cameron.	Pueblo
German, Latin.	
Phelps, Howard Eastwood, B.S. (C.E.)	Boulder
University of Colorado, 1907. Civil Engineering.	
Place, Edwin Bray, A.B.	Boulder
University of Colorado, 1913. Romance Languages, Latin.	
Poe, Charles Franklin, A.B., A.M., Ph.C., B.S. (Phar.)	Boulder
University of Colorado, 1911, 1914. Public Health, Chemistry, Bacteriology.	
Poley, Mildred McNutt, A.B.	Boulder
University of Colorado, 1909.	
Pryor, Elizabeth Durrin, A.B.	Boulder
Vassar College, 1906. Education, English, Psychology.	
Pryor, Hugh Clark, A.B., A.M.	Boulder
University of Colorado, 1911, 1912. Education, Psychology, Sociology.	
Purmort, George Ely, B.S. (C.E.)	Moscow, Idaho
University of Colorado, 1913. Structural Engineering, Reinforced Concrete.	
Randall, Helena Gloyd, A.B.	Boulder
University of Colorado, 1913. Latin, Education, Greek.	

NAME	RESIDENCE
Read, Hazel.....	Boulder
German.	
Renaud, Abel Etienne Bernardeau, A.B., A.M.....	Denver
University of Paris, 1905; University of Colorado, 1915.	
Romance Languages.	
*Reynolds, Edna Marguerite, A.B., A.M.....	Denver
University of Colorado, 1912, 1913.	
Psychology.	
Richert, David Henry, A.B.....	Newton, Kansas
Oberlin College, 1909.	
Mathematics, Physics.	
*Roberts, Roy Powderly, B.S. (C.E.).....	Shanghai, China
University of Colorado, 1910.	
Civil Engineering.	
Ross, Leslie Truesdale.....	Denver
German, French, Spanish.	
Roulston, Jessie Adams, B.S., A.B., Ph.M.....	Boulder
Lenox College, 1906; Albert Lea College, 1907; University of Chicago, 1910.	
Rudolph, Jennie Stark, A.B.....	Denver
Westminster College, 1911.	
English Literature.	
Sells, Charles Harvey, B.S. (C.E.).....	Yonkers, New York
University of Colorado, 1914.	
Civil Engineering.	
Shattuck, Lucien Hunt, B.S. (C.E.).....	Boulder
University of Colorado, 1914.	
Civil Engineering.	
Shelledy, Ruth Marguerite, A.B., A.M.....	Boulder
University of Colorado, 1910, 1912.	
German.	
Shimeall, Karl Wallace, B.S. (Ch.E.).....	Goodland, Kansas
University of Colorado, 1915.	
Slusser, Horace Greeley, A.B.....	Boulder
University of Colorado, 1911.	
Snyder, May, A.B.....	Colorado Springs
Colorado College, 1915.	
Romance Languages.	
Stockder, Archibald Herbert, A.B.....	Canon City
University of Colorado, 1915.	
Economics, History.	
Sullivan, Alice Helen.....	Grand Junction
Psychology, Philosophy.	
Swift, Perry Clayton, A.B.....	Crete, Nebraska
Doane College, 1909.	
English Literature, English Language, Philosophy.	
Tesdell, Edward Juel.....	Huxley, Iowa
Romance Languages, German, Latin.	
Titus, Esbon Yokum, A.B.....	Omaha, Nebraska
University of Colorado, 1914.	
Chemistry.	

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NAME	RESIDENCE
Trowbridge, Mary, A.B., A.M.....	Boulder
University of Colorado, 1911, 1914.	
English Literature.	
Unseld, George Peterkin.....	Longmont
Mathematics, Physics.	
West, Judson Ray, B.S., B.S. (C.E.).....	Seattle, Washington
University of Colorado, 1903; Leland Stanford Jr. University, 1913.	
Hydraulic Engineering, Civil Engineering.	
White, Raymond Merriman, B.S. (M.E.).....	Longmont
University of Colorado, 1913.	
Mechanical Engineering, Civil Engineering.	
Wolle, Francis, A.B.....	Boulder
University of Pennsylvania, 1911.	
English Literature, English Language.	
Worcester, Dean Amory, A.B.....	Albuquerque, New Mexico
University of Colorado, 1911.	
Psychology, Philosophy.	

SCHOOL OF MEDICINE

FOURTH-YEAR CLASS

NAME	RESIDENCE
Bernard, Laurence Judah.....	Denver
Bluemel, Charles Sidney, A.M.....	Rugby, England
Bouslog, John Samuel, A.B.....	Denver
Campbell, William Ralph, A.B.....	Boulder
Elliott, Chester Howard, M.S.....	Cambridge, Ohio
Gjellum, Arthur Blaine, A.B.....	Fowler
Groom, Robert John, A.B.....	Boulder
Hardesty, Willis Brown.....	Denver
Lannon, Arthur Ray.....	Denver
Macomber, Harold George, A.B.....	Denver
Palmer, Frank Ernest.....	Missouri City, Missouri
Streamer, Charles Walker, A.B.....	Boulder
Wilenchick, Louis, Jr.....	Denver

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THIRD-YEAR CLASS

NAME	RESIDENCE
Brown, Kirk Charles.....	Seattle, Washington
Bush, Cyrus Everette.....	Denver
Dewey, Albert Warner.....	Denver
Dunklee, George Kinney, A.B.....	Denver
Epstein, William Abraham.....	Denver
Fleming, William Donaldson, A.B.....	Boulder
Freed, Hazel.....	Denver
Greedy, Paul Victor, A.B.....	Denver
Kemper, Constantine, A.B.....	Granville, Ohio
Lynch, Ellwood Best, A.B.....	Leadville
McDonald, Franklin Joseph, A.B.....	Leadville
Rothwell, Stephen Gainsford, A.B.....	Denver
Salberg, Joseph Brenald.....	Boulder
Schachet, Reuben.....	Denver
Sloan, William Wesley.....	Berthoud
Southworth, John Deane.....	Springfield, Massachusetts
Teplitsky, Leo.....	Denver
Ullery, Fred Lee, A.B.....	Princeton, Illinois
Vance, Deane Harold.....	Montrose
Vandevere, William Ewing.....	Denver
Waters, Pattison Albert, A.B.....	Denver
Wright, Myron Gilmore.....	Idaho Springs

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SECOND-YEAR CLASS

NAME	RESIDENCE
Baskin, Morris Jacob.....	Denver
Cohenour, Leo Bertram.....	Denver
Dickinson, Jasper Myrton, A.B.....	Denver
Healy, Roscoe Howland.....	Denver
von Holdt, Dora Elizabeth.....	Denver
Hurley, James Roy.....	Cass City, Michigan
Hutchinson, Margaret Ann.....	Boulder
Miller, Lewis Israel, A.B.....	Denver
Printz, Morris, A.B.....	Denver
Proffitt, Ray Verne.....	Denver
Taylor, Edward Earl.....	Pueblo
Tindall, Henry Watkins.....	Denver
Wolf, Julius Aaron.....	Denver

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FIRST-YEAR CLASS

NAME	RESIDENCE
Ashley, Rea Ernest.....	Denver
Bach, Walter Leo.....	Denver
Barrett, Willis Chapel.....	Sheridan, Wyoming
Beery, Joseph Homer.....	Boulder
Bowes, William Joseph.....	Denver
Day, Roy Joshua.....	Boulder
Dewey, Edward Bradley.....	Denver
Faber, Edwin G.....	Tyler, Texas
Graves, Herman Coddington.....	Canon City
Gregg, Harold William, A.B.....	Boulder
Gundrum, Lawrence.....	Carey, Iowa
Guthrie, Robert Lee.....	Denver
Heuston, Howard Hull, B.S.....	Denver
Humphrys, Ethel Dare.....	Hooper
Humphrys, George Sinclair.....	Olathe
Johnson, Harry Arthur.....	Alta, Iowa
Katzman, Maurice.....	Denver
Kenagy, Fayre.....	Rupert, Idaho
Kretschmer, Otto Sheibel, A.B.....	Peru, Illinois
Levinson, Isaac David.....	Denver
Miller, Eli Abraham.....	Denver
Munro, Everett Hale.....	Colorado Springs
Oliver, Rogers King.....	Atlantic Highlands, New Jersey
del Rosario, Jose Maria.....	Manila, P. I.
Rumsch, Richard Gustave.....	South St. Paul, Minnesota
Sears, Thaddeus Perce, A.B.....	Denver
Smith, Willard Arthur.....	Boulder
Trattner, Harry Robert.....	Denver
Walton, James Blaine.....	Boulder
Weiner, Morris.....	Denver
Weinfeld, Samuel.....	Denver

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SPECIAL STUDENTS

NAME	RESIDENCE
Booth, Leonard Roscoe, M.D.....	Aztec, New Mexico
Bunting, Helen Masters.....	St. Davids, Pennsylvania

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SCHOOL OF LAW

THIRD-YEAR CLASS

NAME	RESIDENCE
Froman, Cleo Russell.....	Denver
Henderson, John Wallace.....	Greeley
Ireland, Clarence Leo.....	Hudson
King, William Mabry.....	Sterling
Knowles, Edward Gillett, A.B.....	Denver
McMillin, Homer Stroud, A.B.....	Colorado Springs
Maltby, Glenn Thurston, A.B.....	Boulder
Miller, Herbert Alonzo.....	Fort Morgan
Mors, Julius.....	Chadron, Nebraska
Scandrett, Richard Brown, Jr., A.B.....	Pittsburgh, Pennsylvania
Smith, Bryant, A.B.....	Greensboro, North Carolina
Smith, Robert Gunson, A.B.....	Aurora
Spring, Herbert Arthur.....	Boulder
Waldo, Hubert Devotion, Jr., A.B.....	Purcell

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SECOND-YEAR CLASS

NAME	RESIDENCE
Bishop, Sidney Willard.....	Boulder
Echternach, Albert Verne, A.B.....	Palisade
Hanley, Cope Judson.....	Rensselaer, Indiana
Herrick, Myron Collins, A.B.....	Gunnison
Littler, Paul Le Brock, A.B.....	Fort Collins
McCann, John Agustine, A.B.....	Passaic, New Jersey
Malone, William Henry, Jr., A.B.....	Denver
Sandhouse, Raymond Mirick, A.B.....	Monticello, Iowa
Sayre, Leland Stanford.....	Boulder
Seeman, Bernard Johnson, A.B.....	Denver
Storke, Frederic Putnam, A.B.....	Auburn, New York
Stratton, John McKee.....	Boulder
Sutley, Melvin Lockett, A.B.....	Center
Wray, Harry Clinton, A.B.....	Canon City

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FIRST-YEAR CLASS

NAME	RESIDENCE
Atencio, Jose Andres.....	Monte Vista
Burke, Thomas George.....	Boulder
Cline, Carl Peter.....	Rocky Ford
Cooper, Wallace Albert.....	Fruita
Duggan, Frederick Francis.....	Victor
Fisher, Walter Edward.....	Aspen
Fitzell, Grant Richard.....	Denver
Grieb, Roland Kline.....	Glenside, Pennsylvania
Hanning, Wallace.....	Denver
Harris, Robert Fitton, A.B.....	Boulder
Kelly, Will Abbott.....	Denver
Kemp, Philip Claris.....	Denver
Lewis, James David.....	Niwot
McBride, Edward Henry.....	Brockton, Massachusetts
McKissack, Harold David.....	Glenwood Springs
Myer, Erskine Reed, A.B.....	Columbus, Ohio
Rowland, Jay Miller.....	Boulder
Sanborn, Frederick William, Jr.....	Denver

NAME	RESIDENCE
Sherman, Henry Sterling.....	Montrose
Stephens, Carl James.....	Boulder
Sullivan, Mortimer Francis.....	Denver
Swindler, Charles Patrick.....	Dawson Springs, Kentucky
Wallace, Blaine Bee.....	Denver
Wallbank, Stanley Thomas.....	Boulder
Wilde, Claude Charles.....	Moran, Texas
Zimmerman, Fred David.....	Carbondale

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SPECIAL STUDENTS

NAME	RESIDENCE
Bray, Ross.....	Colorado Springs
Devlin, Frank.....	Wray
Dinneen, Maurice Arthur.....	Cheyenne, Wyoming
Ellis, Edward Henry.....	Morrisville, New York
Field, Richard Harrison, Jr.....	Kansas City, Missouri
Keating, Herbert Edward.....	Sterling
Lane, Albert William.....	Boulder
Long, Thurman Baxter.....	Denver
McBride, John Cumming.....	Boulder
O'Mahoney, Agnes Veronica.....	Boulder
O'Neill, Felix Leo.....	Denver
Ryan, Thomas Henry.....	Denver
Simpson, Herbert Palmer.....	Kline
Wallace, Fred.....	Scobey, Mississippi
Walter, Frederic Joseph.....	Denver
Wehrle, John Daniel.....	Center

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COLLEGE OF LIBERAL ARTS

SENIOR CLASS

NAME.	RESIDENCE.
Adams, Marjorie.....	Belvidere, Illinois
Allen, Frank Ernest.....	Paonia
Anderson, Jesse May.....	Hubbard, Texas
Atencio, Jose Andres.....	Monte Vista
Baskin, Morris Jacob.....	Denver
Baum, Eva Margaret.....	Natoma, Kansas
Boyd, Ann Dickie.....	Saguache
Brace, Letitia Austin.....	Boulder
Bracy, Sarah Margaret.....	Boulder
Brown, Hattie May.....	Denver
Burke, Margaret Katherine.....	Boulder
Burke, Thomas George.....	Boulder
Carlson, Margaret.....	Denver
Chatfield, Elda Alice.....	Boulder
Cheney, Anna Marie.....	Boulder
Cheney, Bess Adel.....	Boulder
Cline, Carl Peter.....	Rocky Ford
Cluphf, Viola Myrtle.....	Boulder
Cooper, William Hamilton.....	Denver
Cornville, Fern.....	Boulder
Crawford, Jessie Margaret.....	Grand Junction
Crawford, Maude Evangeline.....	Grand Junction
Donovan, John Theodore.....	Longmont
Douden, Fonnle Victor.....	Boulder
Dunsmore, Mabel Fredericka.....	Denver
Erwin, Elva Pearl.....	Loveland
Fleming, Minnie Elizabeth.....	Read
Frazier, Quivera Muriel.....	Durango
Germann, Walter Harmon.....	Kanorado, Kansas
Healy, Roscoe Howland.....	Denver
Helmke, Willard Richard.....	Delta
Hoskin, Elizabeth.....	Denver
Hutchinson, Margaret.....	Boulder
Hyde, Anna Beth.....	Denver
Ivers, Wayne Franklin.....	Boulder
Kiker, Cora.....	Boulder
LeCron, Leslie Middlekauff.....	Boulder
Lindberg, Darthula.....	Boulder
Lovelace, Ruth Bush.....	Boulder
Low, Besse.....	Boulder
McAndrew, Mary.....	Boulder
McCurdy, Howard Vincent.....	Mason, Michigan
McCuskey, Mabel Anna.....	Monticello, Iowa
McGehee, Mary Wilson.....	Denver
McGraw, Marguerite Frances.....	Pueblo
McKillop, Katie Elizabeth.....	Boulder
McNeil, Sadie Ethel.....	Boulder
Markley, Louise Florence.....	Battle Creek, Michigan
Masterson, Rebecca Byrd.....	Galveston, Texas
Meents, Frieda.....	Boulder
Moore, Helen Lenore.....	Aspen
Myer, Frances Kathryn.....	New Philadelphia, Ohio
Nafe, Helen Malcolm.....	Boulder
Nelson, Maude.....	Bedford, Iowa

NAME	RESIDENCE
Olwin, Portia Harper.....	Boulder
Orris, Marian Cameron.....	Pueblo
Philpott, Sarah Agnes.....	Spokane, Washington
Piers, Agnes.....	Denver
Probst, Doris Elizabeth.....	Tulsa, Oklahoma
Quillin, Marie Claire.....	Grand Island, Nebraska
Read, Hazel.....	Boulder
Robe, Lidablanché.....	Pueblo
*Roberts, Lewis Dillon.....	Boulder
Ross, Leslie Truesdale.....	Denver
Salberg, Joseph Brenald.....	Boulder
Sanborn, Frederick William, Jr.....	Denver
Sayre, Edna Halcyone.....	Boulder
Sayre, Leland Stanford.....	Boulder
Scott, Richard McDonald, Jr.....	Denver
Scouton, Addie Richman.....	Durango
Sherman, Henry Sterling.....	Montrose
Shuman, George Arnold.....	Boulder
Sillik, Nellie Violet.....	Englewood
Slocum, Cecile Hortense.....	Boulder
Smith, Blanche Elizabeth.....	Denver
Smothers, Wall Edward.....	Boulder
Spring, Walter Lee.....	Boulder
Staley, Raymond Coffey.....	Oklahoma City, Oklahoma
Stanley, Ezma Fae.....	Keota
Stephens, Carl James.....	Boulder
Stocker, Ruth.....	Denver
Stoddard, Edward Olin.....	Denver
Sullivan, Alice Helen.....	Grand Junction
Sullivan, Helen Elaine.....	Denver
Tennant, Mary Elizabeth.....	Tollerburg
Tesdell, Edward Juel.....	Boulder
Thomas, Hazel.....	Boulder
Unseld, George Peterkin.....	Longmont
Vandeburg, Millie Bird.....	Boulder
Wells, Russell Bonney.....	Denver
Young, Gladys Amelia.....	Colorado Springs
Ziegler, Walter Harvey.....	Denver

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JUNIOR CLASS

NAME	RESIDENCE
Adams, Dorothy Eleanor.....	Boulder
Altshiller, Sophia Ravich.....	Boulder
Baumgartner, Hertha.....	Boulder
Beard, Harry Randall.....	Denver
Betts, Floyd Edward.....	Longmont
Brown, Philip Walling.....	Silverton
Canter, Alice Valentine.....	Aurora
Carey, Joanna Teresa.....	Brighton
Chapman, Elbridge Gerry, Jr.....	Denver
Chase, Anna Parsons.....	Denver
Chenault, Ella May.....	Boulder
Clampitt, Hazel Annette.....	Clarendon, Texas
Cordier, Alberta Bernice.....	Celena, Ohio
Davis, Ella Clara.....	Boulder
Davis, Monnette Bain.....	Ness City, Kansas
Dickey, Gladys.....	Windsor
Drach, Gladys Katherine.....	Denver
Drinkwater, Eveyln Louise.....	Denver
Eckel, Maude Louise.....	Boulder

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NAME	RESIDENCE
Eckel, Ruth Elizabeth.....	Boulder
Edmonds, Katherine.....	Boulder
Edwards, Ruth Elizabeth.....	Fort Collins
Ekrem, Nathalie Marie.....	Denver
Fankhauser, Ernest John.....	Durango
Farrington, Paul Robert.....	Boulder
Fawcett, Gladys Wilson.....	Boulder
Fisher, Gladys Adel.....	Pattonsburg, Missouri
Fiske, Wallace Ehrhart.....	Santa Fe, New Mexico
Fitzell, Grant Richard.....	Denver
Fleming, Marjorie Elizabeth.....	Boulder
Fritchman, Norris Marcus.....	Boise, Idaho
Gabriel, Alma.....	Denver
Gardiner, Dorothy.....	Boulder
Garvin, Mary Adella.....	Denver
Glick, George Baum.....	Boulder
Goss, Lawrence Elmer.....	Boulder
Graves, Herman Coddington.....	Canon City
Greene, Adelbert Jay.....	Boulder
Grutter, Walter Luke.....	Hill Top
Hall, Helen Frances.....	Boulder
Harvey, Horace Granville, Jr.....	Denver
Hastings, Irene.....	Grant, Nebraska
Heald, Wilfreda Joy.....	Denver
Hendrickson, Victor James.....	Denver
Higginbotham, Mary Virginia.....	Kirkwood, Missouri
Higgins, Thomas Edward.....	Silverton
Hilderman, Hannah Clara.....	Sterling
Holman, Corinne Louise.....	Boulder
Housel, Florence Irene.....	Boulder
Howard, Jessie Irving.....	Boulder
Hoy, George Wellington.....	Boulder
Huber, Hugo Albert.....	Boulder
Hulburt, Lydia.....	Palisades
Hunter, Leila.....	Denver
Hunter, William Foss.....	Boulder
Jaffa, Bertram Barr.....	Roswell, New Mexico
Kaiser, Harold Robert.....	Breckenridge
Kamman, Mildred Eleanor.....	Boulder
Kenehan, Grace Menadora.....	Denver
Kluss, Florence Helen.....	Boulder
Kohler, Helen Franc.....	Boulder
Kraemer, Clara Frieda.....	Denver
Lenz, Loraine.....	Chicago, Illinois
Lewis, Ethel Gertrude.....	Boulder
Low, Gladys Parker.....	Boulder
McCall, Jeanie Rae.....	Palisade
McCormac, Louise.....	Boulder
McIntyre, Paul Joseph.....	Denver
McKee, Patrick John.....	Montrose
McKibben, Mary Elizabeth.....	Boulder
Marshall, Willis.....	Denver
Martin, Herbert Woods.....	Monte Vista
Marvin, Genevieve Lucille.....	Creede
Mathis, Florence Katie.....	Boulder
Maupin, Julia Aline.....	Boulder
Mead, Dorothy Cecelia.....	Denver
Merrill, Floyd Ellis.....	Brighton
Miller, Eli Abraham.....	Denver
Mills, Corwina Rouse.....	Denver
Morgan, Olive Elizabeth.....	Denver
Nafe, Robert Wallace.....	Boulder

NAME	RESIDENCE
Needham, Mae Claire.....	Victor
Neisler, Frank Leslie.....	Boulder
Nichols, Margaret Estella.....	Mattison
Norton, Irene Achsah.....	Fowler
Noxon, Edith Whitcher.....	Boulder
Nutt, Marian Evangeline.....	Montrose
Oakes, Harold Steiner.....	Denver
Pelta, Ralph Waldo.....	Colorado Springs
Perreten, Arnold Ervin.....	Bogard, Missouri
Phillips, Nellie Malinda.....	Boulder
Pierce, Horace Hale.....	Denver
Powars, Frank Gordon.....	Brighton
Purcell, William Bliss.....	Chicago, Illinois
Rachofsky, Lester Max.....	Denver
Reichelt, Louise Cowlin.....	Boulder
Reilly, Margaret.....	Sioux City, Iowa
Richardson, Elizabeth Scott.....	Boulder
Roe, Glenwood Coblentz.....	Boulder
Rowland, Ben Wright.....	Boulder
Rumsch, Richard Gustave.....	South St. Paul, Minnesota
Sargent, Anita Florence.....	Denver
Scott, Jack Garrett.....	Denver
Seubert, Leo.....	Denver
Shaver, Florence Louise.....	Meeker
Shen, Mung Chin.....	Kiukiang, China
Shulters, Maude Alice.....	Boulder
Simonson, Irwin Dave.....	Buena Vista
Simpkins, Duane Louis.....	Denver
Smith, Opal.....	Fowler
Stratton, Mary Doris.....	Boulder
Swanson, Elizabeth Alma.....	Georgetown
Swindler, Charles Patrick.....	Dawson Springs, Kentucky
Tawney, Barbara.....	Grand Junction
Terwilliger, Mabel Fern.....	Boulder
Thompson, Roland Louis.....	Elray, Wisconsin
Thoreau, Henry David.....	Denver
Trattner, Harry Robert.....	Denver
Tucker, Eleanor Margaret.....	Broomfield
Vandiver, Willie Pearl.....	Boulder
Vaughn, Jack Walter.....	Denver
Walker, Elizabeth Isabel.....	Santa Fe, New Mexico
Wallbank, Stanley Thomas.....	Boulder
Warrington, Jesse Gilbert.....	Boulder
Wason, Norma Marion.....	Creede
Weaver, Carl Franklin.....	Boulder
Weimer, Otto Urban.....	Boulder
Wells, Mary Rosamond.....	Cheyenne Wells
Wickert, Marie Ellen.....	Boulder
Wilde, Claude Charles.....	Moran, Texas
Yates, Lucile.....	Aspen
Yeaman, Lucretia Helm.....	Trinidad

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SOPHOMORE CLASS

NAME	RESIDENCE
Accola, Lorena.....	Mendon, Missouri
Adams, Reine Nellie.....	Olathe
Adams, Victor Kirk.....	Boulder
Adams, Wilbur Wolf.....	Boulder
Alcorn, Floyd Arthur.....	Boulder
Alcorn, LeRoy Neal.....	Boulder
Alexander, Everette Wells.....	Boulder
Anderson, Cyrus Walfred.....	Denver

NAME	RESIDENCE
Anderson, Ruth Adelia.....	Pueblo
Andrews, Hazel Irene.....	Boulder
Arnold, Gertrude.....	Glenwood Springs
Asbury, Mary Eileen.....	Pueblo
Atwood, Charlotte Francis.....	Boulder
Aurand, Esther Isabelle.....	Denver
Bailar, Sadie Frances.....	Salida
Bailey, Bayard Melvin.....	Loveland
Ball, Virginia.....	Alamosa
Barnard, Hamilton Isham.....	Fowler
Beacom, Dean Nolon.....	La Harpe, Illinois
Belser, Ernestine Mary.....	Boulder
Bennett, Rama Virginia.....	Boulder
Bennington, Zula.....	Center
Beresford, Howard Chester.....	Boulder
Beresford, Paul Converse.....	Boulder
Bishop, Sidney Willard.....	Boulder
Blackford, Grace Lela.....	Belleville, Wisconsin
Block, Ernestine Louise.....	Denver
Borland, Eugene Woodburn.....	Wray
Boyd, Gratia Helen.....	Pueblo
Brazil, Hazelle Ethelynn.....	Colorado Springs
Breckenridge, Zella Elizabeth.....	Monte Vista
Brinkley, George Earl.....	Loveland
Brooks, Wilbur Edward.....	Boulder
Burk, Phyllis Clarke.....	Boulder
Burke, John.....	Boulder
Campbell, Ethel June.....	Boulder
Cashmore, Clair.....	Denver
Castle, Winifred.....	Delta
Chadbourn, Reuben Joseph.....	Boulder
Chadwick, Marcus.....	Shelbyville, Indiana
Chapman, Sara Tiffany.....	Denver
Chase, David Thayer.....	Denver
Christensen, Lydia Louise.....	Boulder
Cluphf, Maud Mae.....	Boulder
Coffman, Max Jenner.....	Denver
Collins, Margaret Frances.....	Gunnison
Connor, Paul Emmons.....	Fruita
Coolidge, Eva Cole.....	Boulder
Culbertson, Mary Fern.....	Des Moines, Iowa
Davis, Bennie Margaret.....	Pueblo
Deatherage, James Parker.....	Paonia
Dempsey, Florence Elizabeth.....	Belvidere, Illinois
Denham, Leenel.....	Boulder
Dickey, Ralph Theodore.....	Trinidad
Donley, Maryelenore.....	Mount Morrison
Douglas, Katherine.....	Denver
Duggan, Isabella Ivy.....	Victor
Duling, Florence Julia.....	Trinidad
Erickson, Lucile Olga.....	Denver
Evans, Edwin Van Meter.....	Longmont
Feighner, Emmett Ray.....	Montrose
Fisher, Mary Elizabeth.....	Akron
Fitzgerald, Katherine Dorothy.....	Ogden, Utah
Fleming, Edna Barbara.....	Denver
Fordham, Winifred Mae.....	Glenwood Springs
Francis, Arthur Franklin.....	Cripple Creek
Gilmore, Elsie.....	Denver
Glover, Isabel Eliza.....	Aurora, Nebraska
Goldbloom, Isadore.....	Denver
Greenawalt, Arlo Cornell.....	Denver
Greig, William McKean.....	Sterling

NAME	RESIDENCE
Griffin, James Stephen.....	Denver
Grubb, Henrietta M. Blumer.....	Carbondale
Haass, Adalia.....	Niwot
Hagee, Gladys Rebecca.....	Denver
Hall, Ada Geneva.....	Fowler
Hall, Lathrop Carleton.....	Boulder
Hall, Mary Stella.....	Boulder
Harner, Clyde Ernest.....	Denver
Harris, Riley Joe.....	Fowler
Hausman, Myer.....	Denver
Hay, Mary Mostyn.....	Ouray
Henry, Orian.....	Boulder
Hereford, Dorothy Louise.....	Cripple Creek
Herman, Mildred.....	Boulder
Hickey, Frank Meredith.....	Denver
Hinkley, Henry Lawrence.....	Sterling
Hollingshead, Philip Barton.....	Grand Valley
Hoover, Kenneth Harry.....	Boulder
Hoskins, Bertha Myra.....	Boulder
Howard, Helen Hunt.....	Rifle
Husted, Harold Reid.....	Denver
Ireland, Gail Leonard.....	Hudson
Isbill, Albert Sydney.....	McGregor, Texas
Jackson, Eugene Earl.....	Aztec, New Mexico
Johnson, Vernice.....	Niwot
Kachel, Franklin Robert.....	Denver
Kirkendall, Ruth Esther.....	Fruita
Kissack, Elmer Richard.....	Julesburg
Kistler, Ruth.....	Longmont
Kitchen, Truma E.....	Boulder
Knight, Helen.....	Boulder
Knisell, Katharine Rose.....	Denver
Knowles, Samuel Etnyre.....	Briggsdale
Kohlhausen, Lester Gunter.....	Raton, New Mexico
Kretschmar, George Gustav.....	Boulder
Kronenberg, James Frederick.....	Denver
Leatherman, Alma Helen.....	Lamar
Lewis, Rachel.....	Boulder
Linsley, Everett Gray.....	Boulder
Long, Ruth Marie.....	Shenandoah, Iowa
Lovelace, Lake.....	Boulder
Loveless, Josie May.....	Clayton, New Mexico
Lowe, Frances E.....	Boulder
Lundberg, Helen Maurine.....	Boulder
Lundberg, William Orlando.....	Boulder
Lytle, William Clayton.....	Boulder
McAndrew, Joseph Bernard.....	Boulder
McClellan, George Russell.....	Enid, Oklahoma
McCormac, Jean Evelyn.....	Boulder
McDonald, Roderick James, Jr.....	Leadville
McGinnis, Paul.....	Boulder
McGraw, Robert Emmett.....	Pueblo
McKee, Edith.....	Denver
McNulty, Catherine Esther.....	Carbondale
MacArthur, Margaret Helen.....	Greeley
MacDonald, Hazel Irene.....	Boulder
Macdonald, Helen Mary MacGregor.....	Boulder
MacKay, William Hector.....	Denver
Magnan, June Genevieve.....	Denver
Manning, Marguerite.....	Marble
Marihugh, Helen Louise.....	Idaho Springs
Markel, Casper.....	Denver
Martin, Alice Herschel.....	Denver

NAME	RESIDENCE
Maxwell, Hazel.....	Denver
Mead, Nettie Ottella.....	Cozad, Nebraska
Mead, Roger Bernard.....	Denver
Metroz, Pauline Kendall.....	Gunnison
Miller, Charles Albert, Jr.....	Denver
Monical, Doska Wilhelmina Elizabeth.....	Pueblo
Morse, Alice Luella.....	Alamosa
Moudy, Mary Catherine.....	Creede
Mumma, Bertha Freeman.....	Boulder
Musser, Georgiebelles.....	Denver
Myers, Donald John.....	Boulder
Nairn, George Waverly.....	Boulder
Nelson, Norris Hoag.....	Boulder
Norris, Arthur Wendell.....	La Salle
Norris, Fred Lee.....	Boulder
Norvell, Philip David.....	Boulder
Patton, Edwin Fritz.....	Boulder
Peck, Frances.....	Kansas City, Missouri
Pehlstrom, Ruth Cymbeline.....	Boulder
Pehlstrom, Vera Esther.....	Boulder
Perini, Vincent Charles, Jr.....	Denver
Perkins, Earl James.....	Denver
Phile, Bessie Susan Elizabeth.....	Boulder
Pike, Effie Magdalyne.....	Boulder
Pile, John Charles.....	Dodgeville, Wisconsin
Prinzing, Frederic Joseph.....	Denver
Probst, Karl Max.....	Tulsa, Oklahoma
Purcell, Robert Hart.....	Tolland
Read, Margaret Williams.....	Boulder
Reed, Homer James.....	Boulder
Reed, Russell Mullette.....	Boulder
Remington, Paul Ellsworth.....	Denver
Rennie, Waldo Edward.....	Denver
Reynes, John Francis.....	Boulder
Richards, Percy John.....	Denver
Richardson, Helen Mary.....	Boulder
Riede, Anna Grace.....	Canon City
Roberts, Viola Marguerite.....	Greeley
Robinson, Alcyon.....	Denver
Robinson, William Arthur.....	Fort Collins
Roulston, Margaret Edna.....	Boulder
von Ruecau, Elsa Kathryn.....	Denver
Russell, Charles Elmer.....	Grand Junction
Rutledge, Webster Samuel.....	Denver
Ryan, William Joseph.....	Boulder
Salberg, Eleanor Josephine.....	Boulder
Sawhill, John Alexander.....	Boulder
Schomburg, Thomas Whigham.....	Denver
Sellars, Earl Cushman.....	Boulder
Sells, Virgil Emerald.....	Denver
Shattuck, Rebekah.....	Boulder
Shaw, Earle Lionel.....	Denver
Shaw, William Robert.....	Aspen
Sheldahl, Louis Rees.....	Buena Vista
Sheldon, Mabel Cora.....	Eldora, Iowa
Shideler, Jay Emerald.....	Boulder
Simpson, Harlow Marion.....	Fort Morgan
Slane, Helen.....	Rocky Ford
Smercheck, Lillian Dorothea.....	Boulder
Smith, Feay Burton.....	Montrose
Snow, Prince William.....	Kewanee, Illinois
Soldevilla, Romulo Teodulo.....	Gasas, Tayabas, P. I.
Solt, Helen.....	Boulder

NAME	RESIDENCE
Sowter, Helen.....	Boulder
Spray, Emily Timberlake.....	Denver
Stephens, Evelyn Maude.....	Boulder
Sullivan, Emma Bernice.....	Grand Junction
Swayne, Ida Loyd.....	Boulder
Taylor, Lillian Eugenia.....	Boulder
Thomas, Dyer.....	Boulder
Thompson, Helen Elizabeth.....	Silverton
Thorman, Alma Arvilla.....	Blairstown, Iowa
Townsend, Onabelle.....	Boulder
Tremaine, Minnie D'Estel.....	Inka, Kansas
Trovillion, Genevieve Carolyn.....	Boulder
Tuckwood, Hazel Gladys.....	Denver
Van Hoy, John Edwin.....	Boulder
Vivian, Chauncey Higgins.....	Golden
Walsh, Walter Michael.....	Denver
Ware, Edith Martha.....	Ogden, Utah
Warner, Ethel.....	Boulder
Warner, Wyllys Edwin.....	Fort Morgan
Watson, Nelle Vida.....	Blain
Weatherwax, Jessie Hazen.....	Boulder
Weiss, Louis.....	Denver
Wells, Horace Palmer.....	Denver
Weltman, Moses.....	Denver
Welty, Ada Elizabeth.....	Boulder
West, Nellie Mirick.....	Pueblo
White, Winifred Harris.....	Boulder
Whitehead, Richard Wilson.....	Breckenridge
Wilkin, Frank Josef.....	Denver
Wilkinson, Elizabeth.....	Denver
Willison, George Findlay.....	Denver
Willson, Kenneth Mack.....	Boulder
Wilson, Ethel Josephine.....	Boulder
Witte myer, Gyneth Elizabeth.....	Boulder
Wolf, Clayton Samuel.....	Fort Collins
Woodward, Maude Emma.....	Denver
Wright, Gertrude Lucille.....	Grand Junction
Wright, John Evan Miles.....	Berkeley, California
Writer, Harold Dean.....	Denver
Yeaman, Helen Mary.....	Trinidad
Yeats, Gladys Ellen.....	Boulder
Zinn, Vivian.....	Pueblo

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FRESHMAN CLASS

NAME	RESIDENCE
Abrahamson, Mary Lovisa.....	Boulder
Adams, Albyn Worthington.....	Jacksonville, Illinois
Adams, Charles Chenault.....	Boulder
Adamson, Ruby Kendall.....	Boulder
Allen, Robert Jarrett.....	Fort Morgan
Alley, Andrew Asberry.....	Rifle
Althaus, Florence Gertrude.....	Belvidere, Illinois
Ammons, Teller.....	Denver
Anderson, Florence Marion.....	Denver
Anderson, Sister Mildred.....	Pueblo
Andrews, Selden Spencer.....	Walsenburg
Atkins, Verdon Elmer.....	Longmont
Ayres, Amy Jean.....	Durango
Ball, Wright Owings.....	Meeker
Ballard, Nada Irene.....	Merino
Baum, Margaret Sutton.....	Denver
Bayless, Pansy.....	Boulder

NAME	RESIDENCE
Becker, Elery Ronald	Rocky Ford
Bell, William	Boulder
Bennett, Audrey Esther	Denver
Bennett, Chauncey Aubrey	Boulder
Berman, Hyman	Boulder
Besly, Corinna	Denver
Birney, Olive	Denver
Blackburn, Dorothy Redell	Boulder
Blumer, Nena Elizabeth	Elizabeth
Bolinger, Ursie	Shreveport, Louisiana
Bolles, Helen Louise	Denver
Bone, Robert Laughlin	Monte Vista
Bonn, Dorothy Elizabeth	Canon City
Boyle, Lenore Irene	Longmont
Bradley, Ruth Estelle	Denver
Brandhorst, Lillie Elizabeth	Boulder
Breckenridge, Robert G., Jr.	Monte Vista
Briggs, Robert Ernest	Cedaredge
Brooks, Arta Louise	Boulder
Brown, Edna Mabel	Boulder
Brown, Rosamond Olive	Louisville
Brubaker, Genevieve Bernice	Victor
Bryant, Carl	Ordway
Burke, Naomi Frances	Denver
Burr, Helen	Adair, Iowa
Burris, William Thomas	Pueblo
Canter, Mary Elizabeth	Aurora
Carlson, Clarence Garfield	Masters
Carroll, Phil Harrington	Alexandria, Louisiana
Carroll, William Francis	Colorado Springs
Carruthers, Zilpha Mary	Denver
Cartwright, George Dewey	Santa Fe, New Mexico
Cary, Agnes	Denver
Casey, Robert	Boulder
Chamberlin, Francis Louis	Fort Collins
Chance, Esther Cora	Boulder
Chapin, Dell	Meeker
Chapin, Lucy Katharine	Boulder
Chenoweth, John Edgar	Trinidad
Chisholm, Theodore Frank	Denver
Claer, Annetta	Colorado Springs
Claer, Felicita	Colorado Springs
Clarke, Harold James	Denver
Cleveland, Marjorie	Boulder
Cleveland, Nellie Charline	Boulder
Coakley, Harry Elmer	Denver
Cohn, Regina Louise	Boulder
Cole, William Kenneth	Longmont
Colestock, Trilby Ruth	Boulder
Collins, George Gregg	Kit Carson
Collins, Melvin James	Creede
Coolidge, Cole	Boulder
Corlett, Bessie Anne	Salida
Corlett, Jane Eliza	Monte Vista
Cowdery, William Hodson	Denver
Cox, Harriette Agnes	Denver
Crain, Elza Willis	Fowler
Crary, Margaret H.	Gunnison
Creager, Nellie	Rocky Ford
Cross, Jean Augusta	Loveland
Cush, Anthony John	Pueblo
Dailey, Charles	Aspen
Dale, Lola	Boulder

NAME	RESIDENCE
Danielson, Ralph Wesley.....	Basalt
Day, Justin F.....	Boulder
Delaney, Juaneta Gertrude.....	Holly
DeLongchamps, Mildred.....	Antonito
DeVol, Austin Orne.....	Boulder
Dewey, Jane Lloyd.....	Goldfield
Dinsmore, Naomi Louisa.....	Pueblo
Dinsmore, Sarah Elizabeth.....	Greenville, Texas
Ditson, Marjory.....	Littleton
Donnan, John Knox.....	Austin, Texas
Douds, Marian.....	Denver
Dougan, Pearl Nadine.....	Denver
Douglas, Verne Kenneth.....	Elk Mound, Wisconsin
Duce, Katherine Frances.....	Boulder
Dugan, Ashley Hall.....	Boulder
Dunsmoor, Dora Anne.....	Boulder
Dupree, James William.....	Tampa, Florida
Dwyer, Paul Keefe.....	Creede
Earp, Karl Samuel.....	Boulder
East, Bessie Belle.....	Trinidad
Eastman, Leslie.....	Boulder
Easton, Evan Luther.....	Boulder
Eaves, Elsie.....	Idaho Springs
Ebener, Inez Irene.....	Denver
Edwards, Darrell Beach.....	Fort Morgan
Elam, Roy J.....	Enid, Oklahoma
Elias, Richard Ralph.....	Pueblo
Ellett, Alexander.....	Browning, Missouri
Ellsberg, William.....	Denver
Evans, Rilva Clifford.....	Boulder
Everett, Clifford Delmar.....	Boulder
Faus, Robert Bert.....	Boulder
Fawcett, Beulah Beech.....	Boulder
Feasel, Fred.....	Amsden, Ohio
Finlayson, James Alexander.....	Denver
Flower, Leo Frederick.....	Montrose
Forsberg, Hildegard.....	Denver
Franklin, Lafayette.....	Victor
Fraser, William George.....	Denver
Friedman, Arthur Sylvan.....	Denver
Frink, John.....	Mancos
Fulghum, Carl Whitney.....	Glenwood Springs
Galloway, James Virgil.....	Norwood
Gestring, Arthur Hugh.....	Center
Glasgow, Gwendolen.....	Boulder
Glenn, Beth.....	Denver
Godfrey, Marguerite Atkins.....	Denver
Gore, Zoe.....	Breckenridge
Gormly, Claire Wilson.....	Mount Vernon, Iowa
Gould, Albert J., Jr.....	Denver
Grandjean, Horton Isaac.....	Walsenburg
Greenman, Audrey Fae.....	Sterling
Griffith, John Lindsey.....	Denver
Grigsby, Joseph Dewey.....	Wray
Grimes, Gladys.....	Denver
Grimes, Isadore.....	Denver
Griswold, Myrtle Emma.....	Sterling
Gruver, Margaret Ella.....	Monte Vista
Hair, James William.....	Denver
Hale, Dorothy Prescott.....	Denver
Hand, Lauren Chatfield.....	Gypsum
Hanger, Paul Cornelius.....	Kansas City, Missouri
Harrington, John.....	Cheyenne, Wyoming

NAME	RESIDENCE
Hartendorp, Abram Van Heyningen.....	Denver
Harvey, Edward Lee.....	Denver
Heflin, Avis.....	Aztec, New Mexico
Henderson, James Stewart.....	Montrose
Herold, Inga Margaret.....	Victor
Herrick, David Bryan.....	Gunnison
Hewitt, Beatrice Martha Trowbridge.....	Denver
Hill, Thomas Elroy.....	Rocky Ford
Hopkins, Andrew Simpson.....	Denver
Hopkins, Faye Marie.....	Denver
Horne, Joe Ellis.....	Denver
Hotchkiss, Marie Annette.....	Boulder
Howell, Vonda La Verne.....	Concrete
Huddart, Joe.....	Boulder
Huff, James McDonald, Jr.....	Belvidere, Illinois
Hunt, Marion Louis.....	Raton, New Mexico
Hurlburt, Helen Alverda.....	Loma
Isbill, Cecil Eugenia.....	Boulder
Jackson, Luella Elizabeth.....	Denver
Jenkins, Katherine.....	Denver
Jenks, Henry Irving.....	Denver
Johnson, Mabel Margaret.....	Longmont
Jordan, Lucia Peabody.....	Ouray
Julen, Edward Henry.....	Leadville
Kappler, Edwin Otto.....	Denver
Kavanaugh, Frank Herbert.....	Boulder
Keely, Thomas, Jr.....	Denver
Keim, Marie.....	Denver
Kiddoo, Abby Frances.....	Montrose
Kime, Herbert Rolf.....	Hot Springs, South Dakota
Kistler, Georgie Aloise.....	Denver
Kistler, Wilbur.....	Longmont
Knowlton, Donald Ryder.....	Denver
Knox, Herbert Gail.....	Boulder
Kochevar, Matthew John.....	Crested Butte
Koenigs, Frank Jerome.....	Boulder
Kretschmar, Arthur Herman.....	Boulder
Kroeger, Irma Lillian.....	Sedalia
Kurz, Clarence Haver.....	Delta
Langdon, Erle Edward.....	Buena Vista
Lathrop, Paul Garrett.....	Montrose
Laval, Marcelle Vere.....	Wilmet, Illinois
Lawson, May Violet.....	Louisville
Lawson, Thelma Llewellyn.....	Trinidad
Lee, William Russell.....	Lamar
Le Prowse, Ann Edith.....	Idaho Springs
Lifschitz, Henry.....	Denver
Lind, Rose Matilda.....	Boulder
Livingston, Frances.....	Windsor, Missouri
Loan, Leonard Francis.....	Denver
Long, Josephine Harriett.....	Platteville
Lundberg, Cassandra Catherine.....	Boulder
Lyman, Mildred Harriet.....	Boulder
McCoy, Freda Mabel.....	Boulder
McDonald, June Alice.....	Longmont
McFarland, Burrus.....	Boulder
McGinnies, Nina Elizabeth.....	Boulder
McGinnis, Evelyn Marie.....	Wray
McGowan, Elizabeth Allen.....	Boulder
McKeever, James Ralph.....	Norwood
McKelvy, Laurence Joseph.....	La Junta
McLean, Beryl May.....	Lamar
McLean, Gladys Evans.....	Breckenridge

NAME	RESIDENCE
McMillen, Mildred.....	Boulder
MacColl, LeRoy Archibald.....	Idaho Springs
Maier, Frank Julian.....	Rocky Ford
Marinoff, Oscar.....	Denver
Markey, Joseph James.....	Denver
Marmon, Asa Eldon.....	Boulder
Mason, Marian.....	Boulder
Maul, Robert Franz.....	Denver
Mellors, Thomas.....	Boulder
Mellow, Ethel Ruth.....	Russell Gulch
Miller, Etta Pearl.....	Blockton, Iowa
Mitchell, William Cunningham.....	Denver
Montgomery, William Marion.....	Meeker
Moran, Berneita Frances.....	Belvidere, Illinois
Morrison, Lewis Richard.....	Denver
Morrison, Millard Alford.....	Grand Valley
Morrow, James.....	Raton, New Mexico
Mount, Earl Stanley.....	Denver
Muckle, Edna Helen.....	Denver
Mulvihill, Harry Marcus.....	Denver
Mundell, Vada Edith.....	Ordway
Munson, Clinton Gardiner.....	Oakland, California
Murphy, Franklyn.....	Denver
Nankervis, Ann Leota.....	Idaho Springs
Neely, Lenore Elizabeth.....	Boulder
Neill, Ella Marjorie.....	Greeley
Neitzel, Florence Susanna.....	Boulder
Nelson, Hilda Caroline.....	Denver
Nelson, Margaret.....	Denver
Nichols, Keene Portia.....	Boulder
Nims, Vallant Gale.....	Greeley
Norsworthy, Bernard Alexander.....	Gothenburg, Nebraska
Olds, Fred Hartman.....	Denver
Olson, Richard Gustave.....	Denver
Olson, Vera Anna.....	Victor
Ordonez, David Espiritu.....	Vinasis, Pangasinan, P. I.
Packard, Mary Vivian.....	Warren, Arkansas
Parker, Carl Huntington.....	Clinton, Michigan
Parkin, Walter Fletcher.....	Denver
Parsell, Wesley Manning.....	Canadian, Texas
Pennock, Walter James.....	Cripple Creek
Pettus, Benjamin Franklin.....	Tulsa, Oklahoma
Phillips, Corbett Ellsworth.....	Walsenburg
Phillips, Hettie Vera.....	Boulder
Pitkin, Amy.....	Denver
Powell, Emily Elizabeth.....	Boulder
Powers, Nellie Sabina.....	Lafayette
Pratt, Harriette Alice.....	Chandler
Prey, DuVal.....	Denver
Price, Charlotte Marie.....	Des Moines, Iowa
Prouty, Julia.....	Denver
Pugh, Charles Glenn.....	Denver
Pugh, Harvey Meredith.....	Denver
Pulliam, James Arthur, Jr.....	Durango
Purmort, Eunice Beryl.....	Boulder
Quibell, Earl.....	Longmont
Rapp, Herbert Timothy.....	La Junta
Reed, Charles Emmett.....	Boulder
Reed, Irma Lenore.....	Pocatello, Idaho
Regan, John Lester.....	Creede
Reiber, Lea Alfred.....	Boulder
Rethlefsen, Helen Marie.....	Boulder
Richey, Marie Jacqueline.....	Leadville

NAME	RESIDENCE
Rider, George Clinton, Jr.	Pekin, Illinois
Ripley, John Wilbur, Jr.	Boulder
Robertson, Jennie Marie	Lodi, Wisconsin
Robinson, Carlton Crew	San Acacio
Robison, Harry Irving	Fort Morgan
Rodas, Pedro Padilla	Sta. Cruz, Marinduque, P. I.
Roe, Maurice Alexander	Boulder
Roper, Joe Sheridan	Alamosa
Rose, Clarence William	Boulder
Rose, Lelia Mabel	Pueblo
Rosenberg, Helen	Glenwood Springs
Rutherford, Ione May	Leadville
Sanborn, Raleigh	Bay City, Texas
Santistevan, Floyd	Monte Vista
Saunders, Ray Walter	Boulder
Sayer, Mary Dorothy Ramonceta Elizabeth	Denver
Scarborough, Bryan Freeman	Denver
Scheidegger, Elvin Franklin	Fort Morgan
Schiller, Edna Elizabeth	Fort Morgan
Scott, Harold Mead	New Raymer
Seaman, Genevieve Marie	Loveland
Sellars, Marie	Boulder
Shaffer, Johanna Lenore	Durango
Shaw, Harriet Bliss	Cripple Creek
Sherman, Marguerite Elizabeth	Boulder
Sibbald, Reginald Spalding	Boulder
Simpson, Olive Margaret	Fowler
Smith, Charles Raimor	Boulder
Smith, Ethel Gertrude	Denver
Smith, Irving Stanton	Pueblo
Snider, Helen Marie	Denver
Somerville, Edwin Slaven	Limon
Sparks, Katharine Noble	Alton, Illinois
Spencer, Floyd Albert	Boulder
Spivak, Deena	Denver
Staley, Wesley Bryan	Arvada
Steadman, William Errol	Denver
Steinhoff, Lawrence Henry	Fort Morgan
Stevenson, Nellie Hurlbut	Danville, Iowa
Stratton, Marjorie Allen	Boulder
Swain, Welton Chipman	Chicago, Illinois
Swanson, William Walfred	Brakam, Minnesota
Swartz, Kathryn	Denver
Sylvester, Alfred Tennyson Daniel	Greeley
Teal, Annabel Carolyn	Boulder
Thomas, Colin James	Denver
Thompson, Elizabeth Alice	Holyoke
Thompson, Harold Clark	Greeley
Thorne, Leland Forrest	Linneus, Missouri
Tidwell, Reuben Bruce	Denver
Tillinghast, Beulah Eloise	Carlton, Texas
Toomey, Petronella Burnadette	Aspen
Tovatt, Vernon Joseph	Swink
Trezise, Edith	Boulder
Tucker, Jasper Lindsey	Lamar
Ulmer, Joseph	Stony Plain, Alta, Canada
Unfug, August Theodore	Walsenburg
Unger, Helen S.	Florence
Vance, George Challen	Denver
Van Voorhis, Elizabeth W.	Arvada
Vincent, John Thomas	Victor
Vincent, Leona Elizabeth	Victor
Wagner, Henry Joseph	Boulder

NAME	RESIDENCE
Walker, Ambrose Carlton.....	Denver
Walsh, James Paul.....	Denver
Walton, Edith Gertrude.....	Colorado Springs
Watts, Lotus Lee.....	Sterling
Wear, Harry H.....	Meeker
Webb, Charles Wilson.....	Denver
Webster, Irma Mae.....	Elbridge, New York
Welsh, Donald.....	Denver
West, Elsie Lucile.....	Boulder
Wheatley, George.....	Boulder
Whistler, Leo Elbert.....	Palisade
White, Brenda Anne.....	Pueblo
White, Emma Cornelia.....	Boxelder, Wyoming
White, Helen.....	Boulder
White, Vivian.....	Boulder
Williams, Alma.....	Cripple Creek
Williams, Irene Virginia.....	Boulder
Williams, William McKinley.....	Elbert
Willison, Andrew Brunton.....	Denver
Wilson, Jean Hill.....	Denver
Witte myer, Florence Helen.....	Boulder
Witte myer, John.....	Boulder
Wooding, Virginia Margaret.....	Denver
Writer, Russell Mapes.....	Denver
Yegge, William Bernard.....	Wiggins
Young, Isabel Scott.....	Walsenburg

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SPECIAL STUDENTS

NAME	RESIDENCE
Abell, Wendell Edward.....	Riley, Kansas
Akerlund, Oscar Anthony.....	Wylie, Minnesota
Anderson, Frank William, B.S.....	Boulder
Annin, William Edwards.....	Denver
Bouton, Blanche Cole.....	Boulder
Cleveland, Ethel Chenault.....	Boulder
Edwards, William Charles.....	Aber-Bargoed, England
Factorovich, Michael.....	Buffalo, New York
French, Harrison Bryan.....	Boulder
Goto, Shinzaburo J.....	Ikesu, Hikone, Oni, Japan
Hubbard, Helen Elizabeth.....	Boulder
Jaggat, Charlotte Columbia, A.B.....	Oakley, Kansas
Jordan, Frank.....	Cheyenne, Wyoming
Krouse, Rollo.....	Onaga, Kansas
Landers, Elisabeth Bonn.....	Boulder
Landers, Joseph Samuel, B.S.....	Denver
Lashly, Theodore Grafton.....	Boulder
Leonard, Chester Arthur.....	Boulder
Lewis, Glenn Francis, A.B.....	Denver
Mortensen, Anna Kathrine.....	Stenstrup, Denmark
Olds, Thomas Hartman, C.E.....	Denver
Phelps, Cora Mayo.....	Boulder
Reeks, Esther.....	Boulder
Reynes, Mary Augustine Catherine.....	Boulder
Rohde, Amanda Rhoda.....	Boulder
Sinclair, Gweneth Marguerite.....	Cedar Rapids, Iowa
Smylie, Robert Sayre, Jr.....	La Veta
Starr, James Franklin.....	Boulder
Wallace, Ethel Nan.....	Boulder

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COLLEGE OF ENGINEERING

SENIOR CLASS

NAME	COURSE	RESIDENCE
Beresford, Lester Treat.....	C.E.	Boulder
Billington, Ronald Vedder.....	M.E.	Denver
Blythe, Samuel Judson, Jr.....	E.E.	Boulder
Boring, Maynard McKay.....	E.E.	Denver
Campbell, Donald Atwood.....	E.E.	Denver
Dillon, Lee Somerville.....	C.E.	Boulder
Dillon, Malcolm White.....	M.E.	Boulder
Dungan, Quentin Randolph.....	Ch.E.	Boulder
Dunn, Paul Joseph.....	C.E.	Olathe
Good, Edison B.....	M.E.	Fondis
Greene, John Fewlass.....	C.E.	Denver
Hall, Wilfred McGregor.....	C.E.	Denver
Hodges, James Seymour.....	E.E.	Boulder
Idelson, Michael Norman.....	E.E.	Denver
Ivers, Wayne Franklin.....	E.E.	Boulder
Locke, Charles Russell.....	Ch.E.	Denver
Lyster, Arthur Frederick.....	M.E.	Greeley
McBride, Paul Francis.....	E.E.	Topeka, Kansas
McClintock, Clyde Hirsch.....	M.E.	Cripple Creek
Morgan, Nathan Wilson.....	C.E.	Boulder
Morrison, Barrett Whitney.....	M.E.	Denver
Nakano, Ryotaro.....	E.E.	Matusyama, Japan
Nelson, Emil Raymond.....	C.E.	Longmont
Nelson, Walter Kenneth.....	E.E.	Grand Junction
Park, John Charles.....	C.E.	Greeley
Pearce, William Ralph.....	C.E.	Denver
Peterson, Ernest Frederick.....	E.E.	Greeley
Rapp, Roy Lee.....	E.E.	Denver
Reid, Hugh Applegate.....	C.E.	Denver
Robertson, Frank W.....	Ch.E.	Colorado Springs
Roloson, Glenn Bruno.....	E.E.	Boulder
Rusk, Willard Weaver.....	C.E.	Palisade
Russell, Marvin Howard.....	M.E.	Canon City
Sage, John.....	C.E.	Boulder
Sawyer, Wilfred David.....	M.E.	Greeley
Scheffel, Carl Ludwig Fred.....	C.E.	Grand Island, Nebraska
Sherrill, Marcus Henry.....	Ch.E.	Denver
Strock, Morris Sperry.....	E.E.	Denver
Tour, Sam.....	Ch.E.	Pueblo
Vallet, Victor Emil.....	C.E.	Nauvoo, Illinois
White, Kenneth Ingram.....	Ch.E.	Boulder
Whitney, Parker Richards.....	C.E.	Denver
Worcester, Harold Sidney.....	M.E.	Victor

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JUNIOR CLASS

NAME	COURSE	RESIDENCE
Allen, Everett Wait.....	M.E.	Kalona, Iowa
Beattie, Wayne Stephenson.....	M.E.	La Salle
Beck, Albert.....	E.E.	Pueblo
Berry, Standish Edmund.....	E.E.	Boulder
Brierley, George Cecil.....	E.E.	Boulder
Brockway, Waldo Emerson.....	C.E.	Ouray

NAME	COURSE	RESIDENCE
Brown, Charles Matthew.....	C.E.	Denver
Brunton, Harold James.....	M.E.	Denver
Buckley, John Harold.....	M.E.	Longmont
Burgess, Warren Childs.....	M.E.	Boulder
Chapin, Sprague Lynn.....	E.E.	Boulder
Clymer, Charles Clarence.....	E.E.	Denver
Coffey, Alfred Leo.....	C.E.	Brighton
Colt, Norman Hubert.....	E.E.	Denver
Collins, Arthur Gus.....	M.E.	Salida
Craig, Harvey Clarence.....	M.E.	Boulder
Curry, Charles Kenneth.....	C.E.	Boulder
Curtis, Howard Gray.....	C.E.	Rapson
Damgaard, Carl Wang.....	C.E.	Bonnek, Denmark
Dunford, Samuel Williams.....	C.E.	Walsenburg
Dwyer, Martin Joseph.....	C.E.	Creede
Eastman, Harold Lee.....	E.E.	Boulder
Ekrem, Thomas Clarence.....	E.E.	Denver
Ellison, Murl J.....	E.E.	Crook
Fertig, John Landon.....	M.E.	Montrose
Flam, August.....	E.E.	Schenectady, New York
Foster, Bryant Edgar.....	M.E.	Roswell, New Mexico
Fraser, Verness.....	E.E.	Boulder
Greenman, Eric Raymond.....	E.E.	Pueblo
Hardenbrook, Morse Evens.....	E.E.	Boulder
Hibbard, Lester Carpenter.....	C.E.	Cheyenne Wells
Hinkle, Allen Ellsworth.....	E.E.	Berthoud
Hum, Justus Clifford.....	C.E.	Sharpsville, Pennsylvania
Johnson, Joseph Buskirk.....	M.E.	Denver
Johnson, Lester Bryan.....	E.E.	Durango
Johnson, Levant.....	M.E.	Georgetown
Kettle, William Charles.....	C.E.	Westcliffe
Kraxberger, Ernest Frank.....	C.E.	Sterling
Krueger, George Henry.....	M.E.	Denver
Leroy, Victor Eugene.....	E.E.	Denver
Lewis, Robert Sherman.....	C.E.	Boulder
Lutz, Thomas Edward.....	C.E.	Mapleton, Iowa
McCrum, Douglas Stuart.....	E.E.	Oneonta, New York
McFerson, William Henry.....	C.E.	Boulder
Marcus, Jerome Stanley.....	Ch.E.	Longmont
Mathew, Steere de Montfort.....	E.E.	Denver
Merritt, Robert Wendell.....	E.E.	Denver
Milroy, James.....	E.E.	Denver
Montgomery, Floyd Winfred.....	M.E.	Boulder
Morrison, William Scott.....	E.E.	Denver
Morrow, Walter Tomson.....	C.E.	Colorado Springs
Murphy, James Malcolm.....	M.E.	Clifton
Myers, Raymond John.....	E.E.	Denver
Orr, Hugh N.....	Ch.E.	Cripple Creek
Patterson, Stanley.....	C.E.	Denver
Perreten, Arnold Ervin.....	E.E.	Bogard, Missouri
Platts, Harlow Case.....	M.E.	Boulder
Rader, Cranston Bourquin.....	E.E.	Denver
Rapp, Earl.....	C.E.	Denver
Reed, Stanley Morton.....	E.E.	Pocatello, Idaho
Richardson, Robert Mark, Jr.....	E.E.	Boulder
Scherer, Edward Henry.....	M.E.	Billings, Montana
Schloss, Charles Murdock.....	E.E.	Woodville, Mississippi
Schwend, John William.....	M.E.	Ouray
Serat, George William.....	C.E.	Denver
Shimeall, Herbert Ray.....	E.E.	Goodland, Kansas
Short, Philip Breen.....	E.E.	Denver
Shugren, Maurice Ulysses.....	E.E.	Denver
Smith, Horace Malcolm Root.....	E.E.	Denver

NAME	COURSE	RESIDENCE
Strauss, Herman Gross.....	C.E.....	Denver
Sunnergren, Edwin.....	E.E.....	Denver
Tashima, Yoshio.....	E.E.....	Brighton
Thorpe, John George.....	E.E.....	Denver
Van Arsdall, Leland Burdette.....	C.E.....	Denver
Walker, Albert Charles.....	Ch.E.....	Denver
Warner, Arthur Howard.....	E.E.....	Carr
Woolley, Frederic Hartzell.....	E.E.....	Denver
Wynn, Hubert Alexander.....	E.E.....	Durango

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SOPHOMORE CLASS

NAME	COURSE	RESIDENCE
Allen, William.....	C.E.....	Lafayette
Anderson, Joseph Nathaniel.....	C.E.....	Denver
Anderson, Philo Hiram.....	C.E.....	Mendon, Idaho
Apel, Philip George.....	C.E.....	Fort Lupton
Aulsebrook, William John.....	E.E.....	Elbert
Barnard, Albert.....	M.E.....	Boulder
Bessee, Charles Webster.....	M.E.....	Denver
Blake, Albyn Bernard.....	Ch.E.....	Denver
Boylan, James P.....	C.E.....	Denver
Brubaker, William Felker.....	C.E.....	Boulder
Burlingame, Charles Raymond.....	M.E.....	Denver
Canfield, Paul Moore.....	E.E.....	Glenwood Springs
Catlett, Robert Larkin.....	E.E.....	Trinidad
Catterson, Frehn Hutchins.....	Ch.E.....	Paonia
Clark, Phillip Jordan.....	Ch.E.....	Denver
Clifford, Joseph Michael.....	E.E.....	Derby
Collins, Arthur Lancelot.....	M.E.....	Denver
Costello, George Francis.....	Ch.E.....	Denver
Creglow, Frederick Delmar.....	C.E.....	Burlington
Croft, Huber Ogilvie.....	M.E.....	Denver
Crotts, Frank Marlon.....	E.E.....	Rocky Ford
Danielson, Gus Edward.....	M.E.....	Boulder
Devalon, Earle Waldo.....	E.E.....	Golden
Divine, Howard Eber.....	M.E.....	Pallisade
Duggan, Harold Charles.....	M.E.....	Denver
Dungan, Paul.....	Ch.E.....	Boulder
Eastom, Frank Artemus.....	E.E.....	Denver
Eckel, Raymond Earl.....	C.E.....	Denver
Elzi, Joseph Andrew.....	E.E.....	Boulder
Eschenburg, Herman.....	C.E.....	Boulder
Flint, Harry Milton.....	Ch.E.....	Denver
Geister, Carl Henry.....	E.E.....	Primghar, Iowa
Gillett, Clarence Herbert.....	Ch.E.....	Denver
Gittings, William Norton.....	E.E.....	Rifle
Graves, Carl Osborn.....	M.E.....	Canon City
Gray, Wharton Kinsey.....	E.E.....	Denver
Greenawalt, Arlo Cornell.....	Ch.E.....	Denver
Hall, Ralph Johnson.....	E.E.....	Denver
Hamilton, Robert Fox.....	M.E.....	Denver
Harris, Albert George.....	M.E.....	Aspen
Harvey, Eugene Cochrane.....	C.E.....	Santa Fe, New Mexico
Hewitt, Harold Gleason.....	Ch.E.....	Denver
Hinkley, Tracy Luther.....	Ch.E.....	Sterling
Hughes, Ernest.....	C.E.....	Denver
Huntington, Everett Samuel.....	C.E.....	Denver
Hyatt, Ernest Fletcher.....	Ch.E.....	Alamosa
Irion, Clarence Eugene.....	E.E.....	Denver
Jewett, James Hervey.....	E.E.....	Boulder
Johnson, Algon Benjamin.....	C.E.....	Collbran
Joyce, William David.....	E.E.....	Antonito

NAME	COURSE	RESIDENCE
Kerr, Francis Payne.....	E.E.	Denver
Kurtz, Guy Orth.....	M.E.	Fort Morgan
Lendecke, Hugo Maria Robert...	Ch.E.	Georgetown
Leppia, Walter John.....	M.E.	Denver
Loper, William Bryan.....	E.E.	Montrose
Love, Harry Allan.....	E.E.	Steamboat Springs
Lowe, Lyle Thornton.....	E.E.	Glenwood Springs
McCoy, Lewis Jefferson.....	E.E.	Boulder
Mellett, Will Wood.....	Ch.E.	Boulder
Merritt, Charles Wendell.....	E.E.	Denver
Morley, Harold Thompson.....	M.E.	Denver
Neuman, Robert, Jr.....	E.E.	Victor
Nims, Cloyse Cherry.....	M.E.	Boulder
Nock, Henry Thomas.....	Ch.E.	Denver
Nord, Arthur William.....	E.E.	Salida
Orris, James Ralston.....	Ch.E.	Pueblo
Parr, Elza Wellington.....	C.E.	Colorado Springs
Pierce, Charles Brown.....	E.E.	Denver
Purinton, Roy Lewellyn.....	E.E.	Denver
Randall, John Dudley.....	M.E.	Boulder
Richardson, George Sherwood...	C.E.	Boulder
Rifkin, Myer.....	C.E.	Denver
Rigby, John Herbert.....	C.E.	Meeker
Ruegnitz, Herbert Coe.....	Ch.E.	Pueblo
Rust, Edgar Hoyt.....	E.E.	Denver
Rymer, Donald Hugh.....	E.E.	Edgewater
Sanders, Forest Wayne.....	Ch.E.	Durango
Saunders, Glen.....	C.E.	Boulder
Sears, Harold Thompson.....	M.E.	Boulder
Steinmetz, William.....	C.E.	Denver
Talbot, Richard Arthur.....	M.E.	Pueblo
Tandy, Ben George.....	E.E.	Fort Worth, Texas
Thomas, Edwin Abbott.....	E.E.	Denver
Titley, Thomas Tracy.....	E.E.	Denver
Wheatley, Harold Edward.....	M.E.	Denver
Wood, Carl.....	E.E.	Denver
Worrell, Stewart Evans.....	M.E.	Boulder

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FRESHMAN CLASS*

NAME	RESIDENCE
Anderson, Albert Severin.....	Denver
Barr, Harold Alfred.....	La Junta
Bennet, Harold Housley.....	Denver
Brock, Jesse Raymond.....	Kimberly, Idaho
Burghardt, King.....	Denver
Cain, William Jennings.....	Riverton, Wyoming
Campbell, Glenn Ernest.....	Boulder
Canis, Frank Herald.....	Longmont
Chapin, Dell.....	Meeker
Clifford, Charles James.....	Derby
Cobb, Howard Leo.....	Boulder
Coulson, Donald Chaney.....	Durango
Cowdery, William Hodson.....	Denver
Crispelle, Kenneth Guy.....	Leadville
Cuthbertson, Robert Emmet.....	Denver
Devenish, George Bushe.....	Denver
Dobbins, Eugene Victor.....	Denver
Dunlap, Paul Meredith.....	Kalona, Iowa
Easley, William Lee.....	Trinidad
Elliott, John Paul.....	Boulder

*Freshman Engineering students are not classified as to course.

NAME	RESIDENCE
Fletcher, Orion Frederick.....	LaJara
Froese, Erhard Albert.....	La Junta
Gilmore, Frank Severt.....	Idaho Springs
Goss, Lewis William.....	Lime
Gould, Joseph Winfred.....	Denver
Gray, Homer Warrington.....	Gunnison
Hadley, Ralph Harold.....	Artesia, New Mexico
Haire, Homer Hunt.....	Boulder
Harmon, Earl Leonard.....	Lafayette
Hausman, Benjamin Franklin.....	Denver
Hedgcock, Wendell Thomas.....	Denver
Herman, Harry Henry.....	Boulder
Hoffman, Roy August.....	Denver
Holm, Alvin John.....	Denver
Hopson, Silas Wellington.....	Denver
Ingham, Arthur Woodward.....	Aspen
Johnson, Kent Wilbur.....	Boulder
Kane, Raymond Joseph.....	Denver
Keinath, Harold Arthur.....	Artesia, New Mexico
Kelley, Frank Joseph.....	Leadville
Kelsey, Harold Martin.....	Denver
Killian, George Leslie.....	Denver
Kimsey, William Alexander.....	Denver
Klein, Frank Benedict.....	Greeley
Knupp, Vern Charles.....	Rifle
Kretschmer, Charles, Jr.....	Pueblo
Lalli, Anthony.....	Louisville
Lawrence, Dean Leslie.....	Rocky Ford
Lawrence, Wylie Earl.....	Boulder
Lewis, Edwin Coustard.....	Boulder
Lind, Orlando Howard.....	Rupert, Idaho
Lindsay, James Armour.....	Denver
McGee, William Bryan.....	Pagosa Springs
McGinnis, Charles Lester.....	Idaho Springs
Macken, John Emmett.....	Denver
Mahoney, David Gerald.....	Denver
Maier, Frank Julian.....	Rocky Ford
Malixi, Juan.....	Balanga, Bataan, P. I.
Manning, Arthur Edmund.....	Denver
Matthiessen, Frederic William, III.....	La Salle, Illinois
Matthiessen, George Dwight.....	La Salle, Illinois
Mechling, Eugene Burlingame.....	Denver
Moore, Raymond Charles.....	La Junta
Morrison, Richard Sykes.....	Denver
Murray, Paul Vincent.....	Denver
Nelson, Wesley Robert.....	Norwood
Olson, Louis Bernhardt.....	Victor
Oviatt, Edward William.....	Longmont
Page, Henry.....	Denver
Patterson, Ernest George.....	Fort Morgan
Perry, Benjamin Francis.....	Fort Lupton
Phelps, Colin Eastwood.....	Broomfield
Pinger, Allen Wainwright.....	Leadville
Pratt, Stuart Wilkins.....	Boulder
Prichard, Homer Dow.....	Peyton
Reames, Eldred Strong.....	Fruita
Reno, T. Lee.....	Limon
Rhodes, Howard George.....	Salida
Ross, Walter David.....	Boulder
Rush, John Lewis.....	Denver
Sagara, Shunto.....	Kumamoto, Japan
Schuch, Leland Stanford Akin.....	Boulder

NAME	RESIDENCE
Serat, Mortimer Edgerton, Jr.....	Denver
Sherman, George Raymond.....	Boulder
Simmons, William Peter.....	Denver
Skinker, Murray Fontaine.....	Denver
Speas, Clarence Edward.....	Buena Vista
Spier, James Eldredge.....	Mount Clemens, Michigan
Springer, Charles William.....	Wapello, Iowa
Staton, Hyrcanus Ivan.....	Carbondale
Stone, Caleb.....	Denver
Stribling, George Epler.....	Denver
Swanson, Frederick Theodore.....	Georgetown
Tarr, James Major.....	Greeley
Ten Eyck, Boyd Hartshorne.....	Denver
Tipton, Royce J.....	Crestone
Vertrees, Fred Charles.....	Yampa
Vicklund, Claud Alven.....	Denver
Vicklund, Enoch Rhinehart.....	Denver
Welch, Clarence Stratton.....	Sterling
White, Wilford Lenfesterg.....	Boulder
Whyman, Ainslie Cecil Mellor.....	Denver
Woodworth, Dean Thorp.....	Custer, South Dakota
Woodworth, Ernest Frederick.....	Boulder
Worthington, Biddle Wilkinson.....	Birmingham, Alabama
Young, Benjamin Uel.....	Evans

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SPECIAL STUDENTS

NAME	RESIDENCE
Boase, Arthur James.....	Boulder
Eastman, Paul Wilberforce.....	Cameron, Missouri
Edmonson, James Charles.....	Telluride

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SCHOOL OF PHARMACY

FOURTH-YEAR CLASS

NAME	RESIDENCE
Welles, Charles Harold, Ph.C.....	Boulder —1

THIRD-YEAR CLASS

NAME	RESIDENCE
Loomis, Russell Newton, Ph.C.....	Denver
Mallory, George Elwood, Ph.C.....	Boulder
Roberts, John Lewis, Ph.C.....	Idaho Springs —3

SECOND-YEAR CLASS

NAME	RESIDENCE
Bechmann, Agnes Pauline.....	Creede
Dean, Mattie Elizabeth.....	Boulder
Fedde, Walter Carl.....	Fowler
Husted, Carl Willis.....	Boulder
Law, Walter Eugene.....	Julesburg
Myers, Ned Kenneth.....	Colorado Springs
Potts, Charles Haygood.....	Colorado Springs
Stanton, Clara Marilla.....	Pueblo —8

FIRST-YEAR CLASS

NAME	RESIDENCE
Andrews, Harold Hall.....	La Junta
Bigelow, Lucretia.....	Denver
Bigelow, Ruth.....	Denver
Bonner, Bryan Anthony.....	Idaho Springs
Brady, Joseph Aloysius.....	Empire
Brandhorst, Henry William.....	Boulder
Churchill, George Elmer.....	Salida
Ericson, Wesley.....	Stromsburg, Nebraska
Feldman, Pincus.....	Denver
Gummere, Lloyd Earl.....	Stratton, Nebraska
Keating, Jane Louise.....	Georgetown
Leuer, Aloysius Henry.....	Long Beach, California
Moule, Albert A.....	Ouray
Romano, Anthony Clement.....	Louisville
Sanders, Joseph.....	Primghar, Iowa
Scott, Everett Lee.....	Canadian, Texas
Smith, Ernest Eugene.....	Norwood
Stauffer, Walter Brown.....	Rife
Taylor, Merrill Warren.....	Durango
Thornton, Ethel.....	Boulder
Vaughn, Vilda Lenora.....	Wray
Walsh, James Paul.....	Denver
Wilson, Melchior Harry.....	Victor —23

SPECIAL STUDENT

NAME	RESIDENCE
Burgman, Emily Mae.....	Ignacio —1

TRAINING SCHOOL FOR NURSES

THIRD-YEAR CLASS

NAME	RESIDENCE
Hickman, Hattie Juniette.....	Aurora, Nebraska
Jacobsen, Olga Amalia.....	Fowler
Stanton, Mary.....	Boulder
	—3

SECOND-YEAR CLASS

NAME	RESIDENCE
Crain, Gladys Dae.....	Niotazi, Kansas
Giger, Emma	Boulder
Giss, Selma Marie.....	Boulder
Henderson, Florence Isabel.....	Central City
Sheckell, Adda May.....	Keithsburg, Illinois
	—5

FIRST-YEAR CLASS

NAME	RESIDENCE
Abbett, Nellie Blanch.....	Brighton
Abel, Fern Viola.....	Sheridan, Wyoming
Anderson, Grace.....	Boulder
Glover, Isabel Eliza.....	Aurora, Nebraska
Lacy, Harriett Agnes.....	Cheyenne, Wyoming
	—5

SUMMER SESSION STUDENTS, 1915

NAME	RESIDENCE
Aarvig, Bertha Olive, Di.B.	Willmar, Minnesota
Abrahamson, Mary Lovisa	Elgin, Texas
Adams, Dorothy Eleanor	Denver
Adams, Marjorie	Belvidere, Illinois
Adams, Minna Worthington	Jacksonville, Illinois
Adams, Wilbur Wolf	Boulder
Alden, Clara Louise, A.M.	Boulder
Allen, Anna Edith, A.B.	Fort Morgan
Allen, Frank Ernest	Paonia
Allison, Alma, Pd.B.	Jasper, Missouri
Andrew, Paul Edward, B.S.	Springfield, Missouri
Andrews, Jessie, Ph.M.	Austin, Texas
Annin, William Edwards	Denver
Armitage, Flora	Little Rock, Arkansas
Arnn, Lizzie	Wellington, Texas
Ashley, Rea Ernest	Denver
Atwood, Charlotte Frances	Boulder
Bach, Walter Leo	Denver
Bagley, Helen Elizabeth, Pd.B.	Pueblo
Bailar, John Christian, A.M.	Golden
Bailey, Bayard Melvin	Loveland
Bailey, Lillian S.	Kansas City, Missouri
Bailey, Vera Irene	Kansas City, Missouri
Baker, Cordah Ethel	Coffeen, Illinois
Barker, Tena	Birmingham, Alabama
Barnard, Albert	Boulder
Barnett, Mary, Pd.B.	Vernal, Utah
Barr, Katherine Abernethy	Norman, Oklahoma
Barr, Lula Abernethy, B.S.	Chickasha, Oklahoma
Barr, Mary Della	Cherryvale, Kansas
Barrett, Eleanor Frances	Pittsburgh, Pennsylvania
Barrett, Laura	Sterling
Barry, Jennie Hill	Sherman, Texas
Bartlett, Mabel Essie, A.B.	Kansas City, Missouri
Barton, Mary Alice, B.S.	Tulsa, Oklahoma
Batten, Sadie Ellen	Knoxville, Iowa
Baum, Eva Margaret	Natoma, Kansas
Baumgartner, Hertha	Boulder
Bayless, Bourke Hamilton	Claremore, Oklahoma
Bayne, Rhoda Margaret	Galena, Kansas
Bean, Clara Eleanor	East St. Louis, Illinois
Bean, Florence Louise	Chillicothe, Illinois
Beecher, Mary Melissa	Hill City, Kansas
Beegle, Myra, Pd.B.	Kansas City, Missouri
Behle, Bertha Amelia, A.B.	Osceola, Nebraska
Bentley, Margaret Stiles	Coffeyville, Kansas
Bigbee, John Albert, B.S.	Little Rock, Arkansas
Birdick, Arthur Almon	Boulder
Black, Clara Adele, A.B.	Loveland
Black, Helen Margaret	Denver
Bliss, Frederick Van Ostrand, B.S. (E.E.)	Denver
Bliss, Lillian M., Pd.B.	Denver
Boette, Cecilia Rose	St. Louis, Missouri
Bolinger, Ursie	Shreveport, Louisiana
Bolshaw, Ellen Martha	Kansas City, Missouri
Bolshaw, May	Kansas City, Missouri
Bomaster, Nelle	Burlington, Iowa

NAME	RESIDENCE
Bonham, George Raymond.....	Enid, Oklahoma
Boswell, Fannie Judith, A.M.....	Boulder
Bowden, Ella.....	El Dorado Springs, Missouri
Bowlin, Lou Belle.....	Garden City, Missouri
Bowlin, Zania May.....	Garden City, Missouri
Brack, Winnie.....	Anadarko, Oklahoma
Bradbury, Ruth Elma, A.B.....	Topeka, Kansas
Bradford, Lenore.....	Boulder
Bremermann, Gretchen Fay.....	Denver
Bretnall, Reginald J., A.B.....	Boulder
Brewster, Miles Leslie, B.S.....	Sedan, Kansas
Briggle, Lorenia.....	Carthage, Missouri
Brock, Charles Nolty.....	Denver
Brown, Gertrude Eliza.....	Ottawa, Kansas
Brown, Juliet Amanda, Pd.B.....	Carterville, Missouri
Brown, Marie Alice Crum, A.B.....	Carterville, Missouri
Bruce, Charles Elbert.....	Kemmerer, Wyoming
Bruce, Marshall Everett.....	East St. Louis, Illinois
Brunton, Harold James.....	Denver
Brush, Elizabeth Parnham, A.M.....	Boulder
Budden, Celia May.....	Corning, Iowa
Burk, Phyllis Clarke.....	Boulder
Burke, Esther Margaret.....	Lawrence, Kansas
Burns, Robert Martin, A.B.....	Olathe
Burrage, Dwight Grafton, A.M.....	Crete, Nebraska
Busby, Emma Sarah.....	Jasper, Missouri
Butler, Lora, A.B.....	Hotchkiss
Caldwell, Albert Francis, A.B.....	Ames, Iowa
Callender, Bessie.....	Hutchinson, Kansas
Calvert, Alma, A.B.....	Muscotah, Kansas
Campbell, Lena Leah.....	Kansas City, Kansas
Campbell, Opal Iona.....	Nevada, Missouri
Cannady, Arah Alice.....	East St. Louis, Illinois
Carey, Joanna Teresa.....	Brighton
Carlson, Margaret, Pd.B.....	Denver
Carpenter, Alice King.....	Warner, Oklahoma
Carpenter, Flossie.....	Forest City, Iowa
Carpenter, Richard Lee.....	Amherst, Massachusetts
Carr, Anna Myrtle, A.B.....	Lincoln, Nebraska
Carter, Audrey Louise, Pd.B.....	Burlington Junction, Missouri
Carter, Marie Sarah, B.L.....	Burlington Junction, Missouri
Cassell, Mabel.....	Houston, Texas
Cavett, Rozina Conway.....	Shreveport, Louisiana
Chase, Mabel Leonard, A.B.....	Boulder
Chinn, Sarah Amelia.....	Kansas City, Kansas
Chrisman, Clem.....	Blum, Texas
Chrisman, Nan Carolyn.....	Blum, Texas
Church, Catherine.....	Cowgill, Missouri
Clark, Agnes Hallie.....	Boulder
Clark, Bertha Beatrice.....	Carthage, Missouri
Clark, Lizzie Means.....	Hopkinsville, Kentucky
Clark, Mary Charlotte.....	Jackson, Nebraska
Clarke, Alice Mary, Ph.B.....	Wellington, Kansas
Clayton, Florence Marie.....	Julesburg
Clemens, Albert Wales.....	Lexington, Missouri
Cluphf, Viola Myrtle.....	Boulder
Cochran, Warren B., A.B.....	Spokane, Washington
Coleman, General Lee, A.B.....	Sedalia, Missouri
Coleman, Mary Agnes.....	Kansas City, Missouri
Collins, Mary Jean.....	Kansas City, Kansas
Condor, Edna, A.B.....	Palmetto, Georgia
Condor, Flora, A.B.....	Palmetto, Georgia
Cone, Helen Mildred.....	Coffeyville, Kansas

NAME	RESIDENCE
Conrey, Arthur J., A.B.	Madison, South Dakota
Cook, Bula Zella	Fontenelle, Nebraska
Corl, Pearl May, A.B.	Joplin, Missouri
Cornell, Benjamin David, A.B.	Boulder
Cornville, Fern	Boulder
Costigan, Mary, A.B.	Ottawa, Kansas
Cotham, Una, A.B.	Monticello, Arkansas
Cott, Leo Stanford	Okmulgee, Oklahoma
Cotton, Agnes Armorer	San Antonio, Texas
Counts, Hilda, A.B.	Boulder
Cowan, M. Cordelia, R.N.	Longmont
Craft, Anna Calista	Corning, Iowa
Crawford, Cora Spring	Beaumont, Texas
Cremeen, Mabel Ellen	Silver Creek, Nebraska
Cresswell, Florence Farnum, A.B.	Hillsboro, Iowa
Cross, Bertram Josiah, A.B.	Glenwood Springs
Cummings, Hazel	Shreveport, Louisiana
Curl, May, A.B.	Monticello, Arkansas
Cusac, Lucile	Tulsa, Oklahoma
Cusic, May	Kansas City, Kansas
Dannevik, Alden, LL.B.	Chapman, Kansas
Davis, Helen Mary, Pd.B.	El Dorado Springs, Missouri
Davis, Pauline	Pawnee, Oklahoma
Davis, Thomas Tudor	Amo
Dawson, Flora Mary, A.B.	College View, Nebraska
Deacon, Anna May, B.S.	Ames, Iowa
Deen, Sarepta Christine	Petersburg, Indiana
Dielmann, Edith M.	Winfield, Kansas
Dielmann, Ray Ernest, A.B.	Winfield, Kansas
Dielmann, Reta Hazel	Winfield, Kansas
Dobler, O. Clara E.	Vail, Iowa
Doran, Isabel Agnes	North Platte, Nebraska
Dorsey, Ruth Anna Laird	Idaho Springs
Douden, Fannie Victor	Boulder
Dougherty, Elizabeth Estelle, A.B.	Sterling, Kansas
Douglass, Frances Pratt, A.B.	Denver
Douthart, Lela Ferree, A.B.	Kansas City, Kansas
Downing, Ethel	Galena, Kansas
Doye, Marguerite Louise	Guthrie, Oklahoma
Draper, Eula	Paducah, Texas
Draper, Sam Edward	Paducah, Texas
Dredge, Grace	Des Moines, Iowa
Dredge, Mary Ruth	Des Moines, Iowa
Drysdale, Kate B.	Lexington, Missouri
Dunaway, Edith	Galena, Kansas
Duncan, Gladys R.	Kansas City, Missouri
Dunlap, Elizabeth Wilkins	Keokuk, Iowa
Dunsmore, Mabel Fredericka	Denver
Durand, Estalyn, B.M.	Green Ridge, Missouri
Durland, Lulu Irene	Norfolk, Nebraska
Dysart, Bonnie Katharine, B.L.	Roswell, New Mexico
Eager, Carrie, A.B.	Hopkinsville, Kentucky
Early, Frances	Medford, Oklahoma
Early, Lorraine	Medford, Oklahoma
Earp, Karl Samuel	Boulder
Eastman, Harold Lee	Boulder
Eddleman, Flora	East St. Louis, Illinois
Edmonds, Katharine	Boulder
Edmonston, Mary Elizabeth	Clinton, Missouri
Elder, Virginia, B.S.	Alden Bridge, Louisiana
Ellis, Olive, Pd.B.	La Plata, Missouri
Enyeart, Bertha Elvina	University Place, Nebraska
Epperson, Charles Albert, A.M.	Houston, Texas

NAME	RESIDENCE
Estep, Clara	Burlingame, Kansas
Evans, Clara Carolyn	Sedalia, Missouri
Evans, Mary Louise	David City, Nebraska
Everett, Nelle Amanda	Gower, Missouri
Fairchild, Ethel Margaret	Claremore, Oklahoma
Fee, Mary	Stafford, Kansas
Feurt, Osta Belle	Jameson, Missouri
Fewel, Charlie Avery	Muskogee, Oklahoma
Field, Mary Louise, B.S. in Ed.	Slater, Missouri
Fink, Carolyn Irene	Alliance, Nebraska
Finley, L. Maude	Moline, Kansas
Fisher, Gladys Adel	Pattonsburg, Missouri
Fisher, Mary Elizabeth	Akron
Fitch, Mary A.	Omaha, Nebraska
Flynn, Catherine	El Paso, Texas
Foglesong, Margaret Jane, Ph.B.	Marshall, Texas
Ford, Frances Ethel	Norman, Oklahoma
Forsyth, Orrin Mack, A.B.	Leadville
Fowler, Cora Ellen	El Dorado Springs, Missouri
Fowler, Frank Bradley	Denver
Fowler, Harry Emerson	Boulder
Frail, James Eddis	LaFayette, Illinois
Freed, Hazel Lezetta, Ph.B.	Breckenridge, Missouri
Freeman, Eliot Nichols	Sugar City
Fronk, Gladys Arletta	Iola, Kansas
Frye, Ora	Lincoln, Kansas
Fulton, Margaret	Deadwood, South Dakota
Furness, Jessie May	Boulder
Gafford, Lucile, B.L.	Sulphur, Oklahoma
Gager, Luella	Kansas City, Kansas
Gager, Maude	Kansas City, Kansas
Gallagher, Margaret May	Hoxie, Kansas
Gambill, William Gray, B.S.	Boulder
Gamble, Achsah Beryl	Enid, Oklahoma
Garzer, Katherine Mayer	Kansas City, Missouri
Garrett, Martha Myers	Fort Dodge, Iowa
Garvin, Christina Augusta	Fremont, Ohio
Gavin, Isabel Booth	Chicago, Illinois
Gentry, Ella Lee	Monroe City, Missouri
Gibbens, Gertrude, B.S.	Cando, North Dakota
Giger, Elizabeth, A.B.	Boulder
Gillespie, Glenn Earl	Loveland
Gilliam, Lev-Ellen, Pd.B.	Sedalia, Missouri
Glasscock, Edith Henrietta	Moline, Kansas
Good, Alvin, A.B.	Little Rock, Arkansas
Good, Electa Rasmussen	Little Rock, Arkansas
Goodhand, Marie Rose	Ord, Nebraska
Goss, Lawrence Elmer	Boulder
Graham, Lillian Wood, M.E.	Crafton, Pennsylvania
Graves, Herman Coddington	Canon City
Graves, Parlon Lonzo, B.S.	Campbell, Nebraska
Green, Helen Louise	Manhattan, Kansas
Greene, Adelbert Jay	Boulder
Greene, Charles Emmett, A.M.	Silverton
Greenlee, Catherine	Sidney, Nebraska
Greenlee, Martha Regena	Sidney, Nebraska
Griffey, Grace Susanna	Richmond, Missouri
Griffith, Phebe, Pd.B.	Carthage, Missouri
Griswold, Sylvia Augusta	Claremore, Oklahoma
Guernsey, Ira Leroy, B.C.E.	Chariton, Iowa
Gunkel, Woodward William	Sheffield, Illinois
Gunn, Kathryn, A.B.	Ottawa, Kansas
Gustafson, Edyth, A.B.	Fort Dodge, Iowa

NAME	RESIDENCE
Gustin, Margaret Catherine.....	Dearborn, Missouri
Gustin, Nancy Frances.....	Dearborn, Missouri
Hackett, Iva.....	Nevada, Missouri
Hagee, Gladys Rebecca.....	Denver
Hagen, Louise Augusta.....	Sterling
Hagenmaster, Marie.....	Stafford, Kansas
Haggard, Barton Johnson, A.M.....	Hiram, Ohio
Hall, Lothrop James.....	Marshall, Missouri
Haller, Anna Rosalia.....	Pittsburgh, Pennsylvania
Hampton, Clinton Alphonse.....	Boulder
Hangen, Eva Catherine.....	Wellington, Kansas
Hankins, Kathryn Allen, A.B.....	Bentley, Kansas
Hardenbrook, Morse Evens.....	Boulder
Harkness, James Irving.....	Newton, Kansas
Harper, Ola.....	Winters, Texas
Hattershire, Margaret.....	East St. Louis, Illinois
Hawthorne, Zillah, A.B.....	Hoisington, Kansas
Haynes, Lillian, A.B.....	Ottawa, Kansas
Heaton, Wilbur McKean, Ph.B.....	Pueblo
Heck, Oscar Benjamin, A.B.....	Collinsville, Oklahoma
Hendrickson, Victor James.....	Denver
Henry, Inez Mabel.....	Cherryvale, Kansas
Heuston, Howard Hull, B.S.....	Denver
Hiatt, Margaret M.....	Kansas City, Missouri
Hiatt, May Farr.....	Kansas City, Missouri
Higginbotham, Mary Virginia.....	Kirkwood, Missouri
High, Oleta Mae.....	Nevada, Missouri
Hildreth, Harold A.....	Lima, Ohio
Hill, William Henby.....	Boulder
Hinds, Norman Ethan Allen, A.B.....	Boulder
Hisaw, Frederick Lee, Jr., A.B.....	Newtonia, Missouri
Hodshire, Stella Florence.....	Kansas City, Missouri
Holladay, Louvina.....	Zwolle, Louisiana
Holmden, Winnifred Lucile.....	College Place, Washington
Hooser, Maude S.....	Ramona, Oklahoma
Hosford, Horace.....	Burlington, Iowa
Houseworth, Gertrude.....	Wichita, Kansas
Howard, James Lacy.....	Kansas City, Kansas
Howard, Julian Cooper, B.S.....	Bradentown, Florida
Howard, Laura, A.B.....	Columbus, Mississippi
Howlett, Alma Vera, A.B.....	Bowling Green, Missouri
Hubbard, Estella Marguerite.....	Boulder
Hubbard, Helen Elizabeth.....	Boulder
Hudson, Eliza Christian, A.B.....	Denver
Hull, Lois Fern, A.B.....	Nickerson, Kansas
Hull, Myra Elsa, Pd.B.....	Nickerson, Kansas
Hunt, Norma Dove, Pd.B.....	Aldrich, Missouri
Hunter, Mary E.....	Pittsburgh, Pennsylvania
Hurst, Helen.....	Kansas City, Missouri
Hurst, Samuel James.....	Kansas City, Missouri
Inches, Anna Minerva.....	Denver
Inches, Inez May, A.B.....	Sterling, Kansas
Ingleman, Anna Alberthine, A.B.....	Independence, Kansas
Ingram, Florence.....	Slater, Missouri
Isherwood, Niera Martha, A.B.....	Carl Junction, Missouri
Ivers, Wayne Franklin.....	Loveland
Ivey, Roxye Elrese.....	Floydada, Texas
Jackson, Ethel.....	Macomb, Illinois
Jackson, Eugene Earl.....	Boulder
Jackson, Eva Lucile.....	Macomb, Illinois
Jacob, Bobbie Frank.....	West Helena, Arkansas
Jamison, Lena, A.B.....	Marks, Mississippi
Jennings, Winnifred.....	Claremore, Oklahoma

NAME	RESIDENCE
Jimison, Brunetta May.....	Stafford, Kansas
Johansen, Bertha.....	Forest City, Iowa
Johnson, Averill Chauncey, B.S.....	Eureka, Ohio
Johnson, Edwina.....	Buckner, Missouri
Johnson, Genevieve Kate.....	Houston, Texas
Johnson, Grace, A.B.....	Boulder
Johnson, Kate Griffith, A.B.....	Chillicothe, Missouri
Johnson, Levant.....	Georgetown
Johnson, Lorenzo Loudon, A.M.....	Boulder
Johnson, Martha Amanda, A.B.....	Waxahachie, Texas
Johnston, Edna.....	Columbus, Mississippi
Jones, Roma Luella, A.B.....	Rupert, Idaho
Jones, William Edwin.....	Fowler, Indiana
Kallgren, Albertina.....	Boulder
Kamman, Mildred Eleanor.....	Spearfish, South Dakota
Kane, Katherine Agnes.....	Boulder
Keene, Carolyn Williams.....	Geneva, Switzerland
Keene, Emerin.....	Geneva, Switzerland
Keene, Emerin Semple.....	Geneva, Switzerland
Keim, Marie.....	Denver
Keller, Bertha Gernart.....	Pittsburgh, Pennsylvania
Kemp, Lavenia B., Pd.B.....	El Dorado Springs, Missouri
Kenagy, Fayre.....	Rupert, Idaho
Kenyon, George Ross, Litt.B.....	New York City, New York
Kerr, Charles Irving, A.M.....	Pueblo
Kerr, Derry.....	Clinton, Missouri
Kerr, Kathryn.....	Muskogee, Oklahoma
Kerr, Mary Foote, B.S.....	Clinton, Missouri
Kesner, Edgar, Ph.B.....	Salida
Kiker, Cora.....	Boulder
Kindle, Florence.....	Lebanon, Kansas
King, Lois Elizabeth.....	Trinidad
Kizler, Ida.....	Arkansas City, Kansas
Kizler, Lena.....	Hillsboro, Kansas
Knappenberger, Viva.....	Tulsa, Oklahoma
Kneale, Ada Florence.....	Boulder
Knight, Ethelyn.....	Smith Center, Kansas
Kohen, Nora Irene.....	Boulder
Kraft, Bertha Madeline.....	Davenport, Iowa
Ladwig, Edna May, B.S.....	Denver
Lahrman, Carl Louis, B.S.....	Alamosa
Lalli, Anthony.....	Louisville
Lane, Edith.....	Clinton, Missouri
Larson, Mary Elizabeth.....	Assaria, Kansas
Lawson, Thelma Llewellyn.....	Trinidad
Lay, Ozelle, Pd.B.....	Knob Noster, Missouri
Leiter, Maude.....	Lafayette, Indiana
Lenaghan, Mary.....	Davenport, Iowa
Leonard, Helen Arvilla, A.B.....	Denver
Lewis, Mary.....	Horton, Kansas
Lewis, Thompson Darnaby, A.B.....	Shelbyville, Kentucky
L'Heureux, Pearl, A.B.....	Nickerson, Kansas
Linley, Corinne, B.S.....	Atchison, Kansas
Lohr, Lida Gertrude.....	Guthrie, Oklahoma
Louthan, Margaret Moore.....	Guthrie, Oklahoma
Lowe, Celena Marie, A.B.....	Bartlesville, Oklahoma
Lowe, Frances.....	Nevada, Missouri
Lownsbery, Leah.....	Esckridge, Kansas
Lownsbery, Verna Venira.....	Esckridge, Kansas
Lunden, Emma, A.B.....	Salina, Kansas
Lunden, Mina, A.B.....	Salina, Kansas
Luzmoor, Elizabeth Jane.....	Boulder
McAndrew, Mary.....	Boulder

NAME	RESIDENCE
McCartney, Mamie.....	Columbus, Kansas
McCarty, Justina.....	Dallas, Texas
McCoy, Dwight Wesley, A.B.....	Versailles, Illinois
McCoy, Florence Ada.....	Kansas City, Kansas
McCready, Eda Vern.....	Macedonia, Iowa
McCullough, Maude Alice.....	Junction, Wyoming
McDowell, Lillie Josephine.....	Houston, Texas
McElroy, Luresa.....	Hutchinson, Kansas
McEnerney, Lawrence Cornelius.....	Aguiar
McFarland, Mary Virginia, A.B.....	Brighton
McFerson, William Henry.....	Boulder
McGowan, Elizabeth Allen.....	Boulder
McKean, Harry Willis.....	Kansas City, Kansas
McLane, Lettie Belle.....	Chandler, Oklahoma
McLaren, Agnes.....	Denver
McLaury, Frank, LL.B.....	Boulder
McMeen, Josephine Elizabeth.....	Chicago, Illinois
McNeal, Robert Howard.....	Harris Station, Ohio
McNeil, Sadie Ethel.....	Boulder
McNerney, Blanche Kathryn, A.B.....	Carthage, Missouri
McNicol, Florence Isabel.....	Tulsa, Oklahoma
McNiel, Bessie Marian.....	Louisville
McRae, Roy Gabriel, A.B.....	Boulder
McReynolds, James Harry.....	Paris, Texas
McRuer, Ruth Bartlett, A.B.....	Hull, Iowa
McRuer, Torrance, A.B.....	Hull, Iowa
McTaggart, Emily Blanche.....	Knoxville, Iowa
MacCurdy, George J., B.Di.....	Tulsa, Oklahoma
Manger, Lulu Catherine.....	Coffeyville, Kansas
Manger, Minnie Frances.....	Coffeyville, Kansas
Marbut, Louise.....	Columbia, Missouri
Markley, Louise Florence.....	Battle Creek, Michigan
Martin, Anna Belle.....	Lee's Summit, Missouri
Mathis, Florence Katherine.....	Boulder
Matthews, Mary.....	Denver
Mattley, Ethel.....	Deadwood, South Dakota
Mattoon, Edwin Whitaker, A.B.....	Champaign, Illinois
Mattox, Estella.....	Shenandoah, Iowa
Mattson, Alma.....	Kansas City, Kansas
Maul, Robert Franz, B.C.S.....	Denver
Mead, Nettie Otella.....	Cozad, Nebraska
Meents, Frieda.....	Boulder
Megede, Nell Bonde.....	Richmond, Missouri
Melcher, Ethel Clark, Pd.B.....	West Plains, Missouri
Melcher, Mary, A.B.....	Columbia, Missouri
Melcher, William, A.M.....	West Plains, Missouri
Mercer, Sylvester William.....	Greenleaf, Kansas
Miles, Opal Lucile.....	Macedonia, Iowa
Miller, Armand Rudolph, B.S.....	Webster Groves, Missouri
Miller, Portia Elizabeth.....	Clay Center, Kansas
Miller, Ruth Cecile.....	Clay Center, Kansas
Mitchell, Bess.....	Fort Worth, Texas
Montrose, Grace Catherine.....	Denver
Moorman, Attie.....	Kansas City, Missouri
Morgan, Caleb Lewis, B.S.....	Hiawatha, Kansas
Morris, Clara.....	Marion, Kansas
Morris, Clara Evelyn, A.B.....	Boulder
Morrison, Julia Tolin.....	East St. Louis, Illinois
Morrison, William Aaron.....	Boulder
Moss, Clifton Lowther, Jr.....	Dallas, Texas
Mott, Albert, Pd.B.....	Purdy, Missouri
Mullins, Vivian, A.B.....	Miami, Missouri
Murphy, Adele M., A.B.....	Decatur, Illinois

NAME	RESIDENCE
Murphy, Mildred Katharine.....	Decatur, Illinois
Mustard, John Henry.....	Sterling, Kansas
Nafe, Helen Malcolm.....	Boulder
Nash, Mary Eleanor, A.B.....	Casper, Wyoming
Nelson, Maude, B.Di.....	Bedford, Iowa
Neville, Lucy Belle.....	Richmond, Missouri
Newcomer, Ralph S., LL.B.....	Boulder
Newel, Esther Anna, B.Di.....	Fenton, Iowa
Nichols, Alma M.....	Hutchinson, Kansas
Nims, Cloyse Cherry.....	Boulder
Nixon, Adol Anna, A.B.....	Piqua, Ohio
Noble, Jessie Patterson.....	Henrietta, Texas
Norman, Cora Arvilla.....	Emporia, Kansas
Norton, Eva May, A.B.....	Hattiesburg, Mississippi
Norvell, Helen, A.B.....	Gilliam, Missouri
Norvell, Philip David.....	Boulder
Nystrom, Laura Christine.....	Columbus, Kansas
Offutt, Mary Bell.....	Pueblo
Opp, John Edward, B.Sc.....	Sutton, Nebraska
Orr, Inez, A.B.....	Mayfield, Kentucky
Owen, Ethel Faye.....	Topeka, Kansas
Owens, Olive.....	Clarendon, Texas
Parker, Edna Irene.....	Omaha, Nebraska
Parker, Edwin Theodore.....	Mobile, Alabama
Parker, Everett Humphreys.....	Denver
Parks, Mabel Burton.....	Hutchinson, Kansas
Parsons, Gail Mary.....	Humboldt, Nebraska
Partner, Nettie Orvilla, Pd.B.....	Rocky Ford
Patrick, George T. W., Ph.D.....	Iowa City, Iowa
Patterson, Virgie Eppler.....	Wichita Falls, Texas
Patton, John Adam.....	Boulder
Payne, Gertrude, Ph.B.....	Danville, Illinois
Pearsall, Deborah Olive, A.M.....	Salida
Peret, Cecil Herbert, A.B.....	Colorado Springs
Perusse, Esther Anna.....	Minneapolis, Minnesota
Peterson, Earl Herman.....	Litchfield, Illinois
Pfeiffer, Gertrude Alma.....	Omaha, Nebraska
Phillips, Birdie Ellen, A.B.....	Boulder
Phillips, Mary Elizabeth.....	Manitou
Piehler, Lillie.....	Alden, Kansas
Piers, Agnes.....	Denver
Pittman, Jo, M.L.....	Boulder
Poe, Charles Franklin, A.M., Ph.C., B.S. (Phar.).....	Boulder
Poindexter, Francis.....	Kansas City, Missouri
Poland, Ruth.....	Ransom, Kansas
Poll, Charlotta Wilhelmina.....	Cincinnati, Ohio
Porter, Cornelia Carolynne, A.B.....	Denver
Potter, Fanny, Ph.B.....	Wancoma, Iowa
Powell, S.....	Chattanooga, Tennessee
Power, Bessie Fay.....	New Augusta, Indiana
Power, Julia Agnes.....	Ponca, Nebraska
Powers, Katherine.....	Mangum, Oklahoma
Powers, Mary Hamilton.....	Mangum, Oklahoma
Prosser, Georgiana.....	Cheyenne, Wyoming
Putnam, Enid, A.B.....	Maysville, Missouri
Ragan, Jenne.....	Lee's Summit, Missouri
Rahman, Christine, Pd.B.....	Langdon, Missouri
Rahman, Mary Alice.....	Rock Port, Missouri
Randall, Helena Gloyd, A.B.....	Boulder
Rarick, Clarence Edmund, A.B.....	Osborne, Kansas
Ratcliffe, Luella Blanche, A.B.....	Boulder
Rea, Leland Hugh.....	Kansas City, Missouri
Rea, Rachel Mary.....	Hutchinson, Kansas

NAME	RESIDENCE
Rector, Bird Louise, A.B.	Slater, Missouri
Reed, Charles Emmett	Boulder
Reed, Ed. L., A.B.	College Station, Texas
Reed, Walter Kellogg	Boulder
Rees, Flora Belle	Carlisle, Iowa
Rehm, Ida	Indianapolis, Indiana
Reid, Hugh Houston	Berkeley, California
Reinertsen, B. Reynold, A.B.	Elk Point, South Dakota
Rhoades, Pearl, A.B.	Slater, Missouri
Rice, Alice Nettie	Burlington
Rice, John Newton, A.B.	Burlington
Richards, Mary Edith, A.M.	Bartlesville, Oklahoma
Richardson, Celia Mary	Moline, Kansas
Richardson, Effie Lucy	Moline, Kansas
Richert, David Henry, A.B.	Newton, Kansas
Ricketts, Elizabeth Leota, Ph.B.	Boulder
Rindom, Frank Oscar	Liberal, Kansas
Risser, Ada Brewer, B.S.	Colorado Springs
Roberts, Alice Dunbar, B.S.	Horton, Kansas
Roberts, Lewis Dillon, A.B.	Boulder
Robnett, Dudley Anderson	Columbia, Missouri
Roe, Gertrude Viola Lamb	Greeley
Rogers, Jeannette Althea	Massena, Iowa
Rohde, Ananda Rhoda	Rock Rapids, Iowa
Rollins, Ethel Edra, A.B.	Dixon, Missouri
Ross, Jeannette Kempton, Pd.B.	Greeley
Ross, Robert Alexander	Grand Junction
Rowe, Genelia	Ennis, Texas
Rowland, Alice Van Dusen	Boulder
Rowland, Ben Wright	Boulder
Rudolph, Elizabeth Christine, Pd.B.	Westminster
Rudolph, Jennie Stark, A.B.	Westminster
Rush, John Lewis	Denver
Russell, Kenneth Eldred	Boulder
Russell, Nancy	Corning, Iowa
Ryan, Kathryn White	Denver
Ryan, Thomas Henry	Denver
Sadler, Laura May	Muskogee, Oklahoma
Sage, John	Boulder
Sahm, Marie, A.M.	Colorado Springs
Sain, Lydia, M.L.	Chanute, Kansas
Salabar, Florence	Durango
Salmans, Bertha Mabel, A.M.	Wichita, Kansas
Sanford, Orin Glover, B.S.	Palmyra, Missouri
Sargent, Jane	Smith Center, Kansas
Savage, Elfie May	Floydada, Texas
Schenck, George Frederick	Ontario, California
Schwiering, Oscar Conrad, A.M.	Cheyenne, Wyoming
Scott, Ruth Bernice	Baldwin, Kansas
Seebaum, Martha	Kansas City, Missouri
Seely, Marie Waterbury, A.B.	Boulder
Semple, Edna, A.B.	Wichita, Kansas
Seng, Chang Ke	Szechuen, China
Shapcott, Mabel Julia, A.B.	Colorado Springs
Sharkey, Lucille Griesmer, A.B.	Hamilton, Ohio
Shaw, Earle Lionel	Denver
Sheets, Guinnevere, B.S.	Joplin, Missouri
Sheets, Roberta Dinwiddie, A.B.	Joplin, Missouri
Sheldahl, Louis Rees	Buena Vista
Sheldon, Mabel Cora	Eldora, Iowa
Shore, Mary Margaret	Columbia, Missouri
Shulters, Maude Alice	Boulder
Shuman, George Arnold	Boulder

NAME	RESIDENCE
Simes, Louise.....	Clinton, Missouri
Simons, Nelle, A.B.....	Fairmount, Indiana
Slater, Gertrude Delilah, Ph.B.....	Ottawa, Kansas
Slutz, Frank Durward, A.M.....	Pueblo
Slye, Florence Mary, A.B.....	Boulder
Smith, Bryant, A.B.....	Summerfield, North Carolina
Smith, Ella Wheeler.....	Sedalia, Missouri
Smith, Frances Marian.....	Hot Springs, Arkansas
Smith, Gratia Hyde.....	Natchitoches, Louisiana
Smith, Irvetta Mary, A.B.....	Longmont
Smith, Mary Alma, Pd.B.....	University Park
Smith, Opal.....	Fowler
Smith, Romeo Gaines, Pd.B.....	Fayette, Missouri
Smith, Thelma, A.B.....	Fowler
Smylie, Robert Sayre, Jr.....	La Veta
Snow, Florence Lydia, A.M.....	Neosho Falls, Kansas
Solt, Helen.....	Boulder
South, Lucy.....	Pittsburgh, Pennsylvania
Spears, Mary Chapman, A.B.....	Dallas, Texas
Sperry, Charles Stillman, A.B., C.E.....	Boulder
Spooner, Margaret.....	Shawnee, Oklahoma
Spoor, Violet Pearl, Ph.B.....	Fowler
Stacey, Netta May.....	Deadwood, South Dakota
Staedelin, Maude.....	Medford, Oklahoma
Stafford, Agnes.....	Butte, Montana
Stafford, Kate.....	Butte, Montana
Starkey, Antoinette.....	Denver
Starr, Emma Ann.....	Chadron, Nebraska
Sterling, Mary Catharine.....	Pawnee, Oklahoma
Stewart, Martha.....	Independence, Missouri
Stoddard, Edward Olin.....	Denver
Strike, Hazel.....	Davenport, Iowa
Strock, Morris Skerry.....	Denver
Stromquist, Laura Theodora, A.B.....	Lindsborg, Kansas
Sullivan, Alice Helen.....	Grand Junction
Sullivan, Florence Mary.....	Grand Junction
Sullivan, Lucille.....	Sibley, Missouri
Swanson, Minnie.....	McPherson, Kansas
Swayne, Ida Loyd.....	Boulder
Tabb, Louise Baker.....	East St. Louis, Illinois
Tanner, Jesse Harper, B.S.....	St. John, Kansas
Taylor, L. V.....	Denton, Texas
Terwilliger, Mabel Fern.....	Boulder
Thernes, Fredericka Magdalene.....	Scribner, Nebraska
Thomas, Tula May, A.B.....	Tulsa, Oklahoma
Thomason, Emma.....	Quincy, Illinois
Thompson, Annie Lee.....	Hartshorne, Oklahoma
Thompson, Clara Gussefeld.....	Boulder
Thompson, John Lee.....	Hartshorne, Oklahoma
Tillinghast, Beulah Eloise.....	Carlton, Texas
Timpe, Bertha Eleanora.....	Burlington, Iowa
Titus, Esbon Yokum, A.B.....	Boulder
Towers, Florence Elizabeth.....	Tulsa, Oklahoma
Trammell, Cynthia.....	East St. Louis, Illinois
Trolinger, Lelia Gertrude, Pd.B.....	Clinton, Missouri
Trolinger, Mallie, Pd.B.....	Clinton, Missouri
Trowbridge, Mary, A.M.....	Boulder
Turner, Doris Nancy, A.B.....	Springfield, Missouri
Turner, Edna Louise, A.B.....	Boulder
Turner, Frances Blackburn, A.B.....	Springfield, Missouri
Turner, Lulu, B.S.....	Odessa, Missouri
Turner, Pearl Viola, A.B.....	Boulder
Tuttle, Mary Maude.....	Danville, Illinois

NAME	RESIDENCE
Twitchell, Jerome, Jr.....	Kansas City, Missouri
Umphress, Sarah Myrtle.....	Claremore, Oklahoma
Unsold, George Peterkin.....	Boulder
Upshaw, Mary Estelle.....	McPherson, Kansas
Valle, Kate Rothwell.....	Denver
Vance, Deane Harold.....	Montrose
Vandeburg, Millie Bird.....	Boulder
Vandever, Mina.....	Zionsville, Indiana
Van Nostrand, Helen Lucile.....	Fairfield, Iowa
Varnar, Calla Edington, A.B.....	St. Joseph, Missouri
Varnar, Sarah Elizabeth.....	Tecumseh, Nebraska
Verhoeff, Mary, A.M.....	Louisville, Kentucky
Walker, Ida.....	Denver
Walker, Kathrynne.....	Boulder
Walker, Myra.....	Pittsburgh, Pennsylvania
Walker, Ralph Glade.....	Osceola, Nebraska
Wallace, Ida May.....	Altamont, Illinois
Wallace, Leslie Allen.....	Kansas City, Missouri
Walsh, Anna Elizabeth, A.B.....	Corwin, Kansas
Walsh, James Martin, A.B.....	Corwin, Kansas
Walsh, Walter Michael.....	Denver
Walters, Opal Ione.....	Grafton, Nebraska
Ward, Leon Stevens, A.B.....	Greeley
Warner, Wyllys Edwin.....	Fort Morgan
Warren, Virginia, Pd.B.....	Warrensburg, Missouri
Warrington, Jesse.....	Muskogee, Oklahoma
Watson, Clara Howard.....	Jackson, Tennessee
Watson, Mary Carolyn.....	Jackson, Tennessee
Watt, Frances.....	Dallas, Texas
Watt, Velma.....	Dallas, Texas
Wavrinek, Anna Josephine.....	Chicago, Illinois
Weaver, Leone Elizabeth.....	Kansas City, Missouri
Weaver, Margaret Belle, A.B.....	Kansas City, Missouri
Wehman, Florence.....	Burlington, Iowa
Weimer, Otto Urban.....	East St. Louis, Illinois
Wells, Blanch Emma.....	Alexandria, Nebraska
Wells, Edna Bell.....	Alexandria, Nebraska
Welty, Ada Elizabeth.....	Boulder
West, Leonard Alfred.....	Leadville
West, Loave Dobson, Pd.B.....	Nederland
Wetherell, Bettie.....	Carthage, Missouri
Whitacre, Esther Sharp.....	Marlton, New Jersey
Whitaker, Elizabeth.....	Fort Worth, Texas
White, Mildred Louise.....	Ablene, Kansas
Whitlow, Cyril Melvin, A.B.....	Lewis, Kansas
Whitten, Petrine Charlotte.....	Boulder
Wickert, Marie Ellen.....	Boulder
Wiley, Sadie, Pd.B.....	Palmyra, Missouri
Williams, Bertha Minnie.....	Bedford, Iowa
Wilson, Edythe May.....	Luray, Kansas
Wilson, Ira Carrell, Pd.B.....	Purdy, Missouri
Wilson, Laura.....	Kansas City, Kansas
Wilson, Lena Maxine.....	Platte City, Missouri
Wilson, Mannie.....	McLean, Texas
Wilson, Minnie Lucina.....	Luray, Kansas
Winans, Henry Morgan.....	Denver
Winn, Eleanor McDougal.....	Dallas, Texas
Winter, Margaret.....	St. Louis, Missouri
Winterhaler, Justine.....	Lake Charles, Louisiana
Wolf, Clayton Samuel.....	Fort Collins
Wollmann, Joseph Andreas.....	Freeman, South Dakota
Wollmann, Marie Susanna.....	Freeman, South Dakota
Wood, Amney.....	Boulder

NAME	RESIDENCE
Woodruff, Thomas Tyson, Jr.....	La Junta
Wootten, Josephine.....	Burlington, Iowa
Worcester, Dean Amory, A.B.....	Albuquerque, New Mexico
Wright, Lois.....	Dadeville, Alabama
Yantis, Maude.....	Sulphur Springs, Texas
Young, Myrtle Alameda, A.B.....	Pittsburgh, Pennsylvania
Zeller, Joseph William, B.S. (M.E.).....	Jacksonville, Florida
Ziegler, Anna Margaret.....	Pittsburgh, Pennsylvania
Ziegler, Walter Harvey.....	Denver
Zinn, Alice M.....	Butler, Pennsylvania

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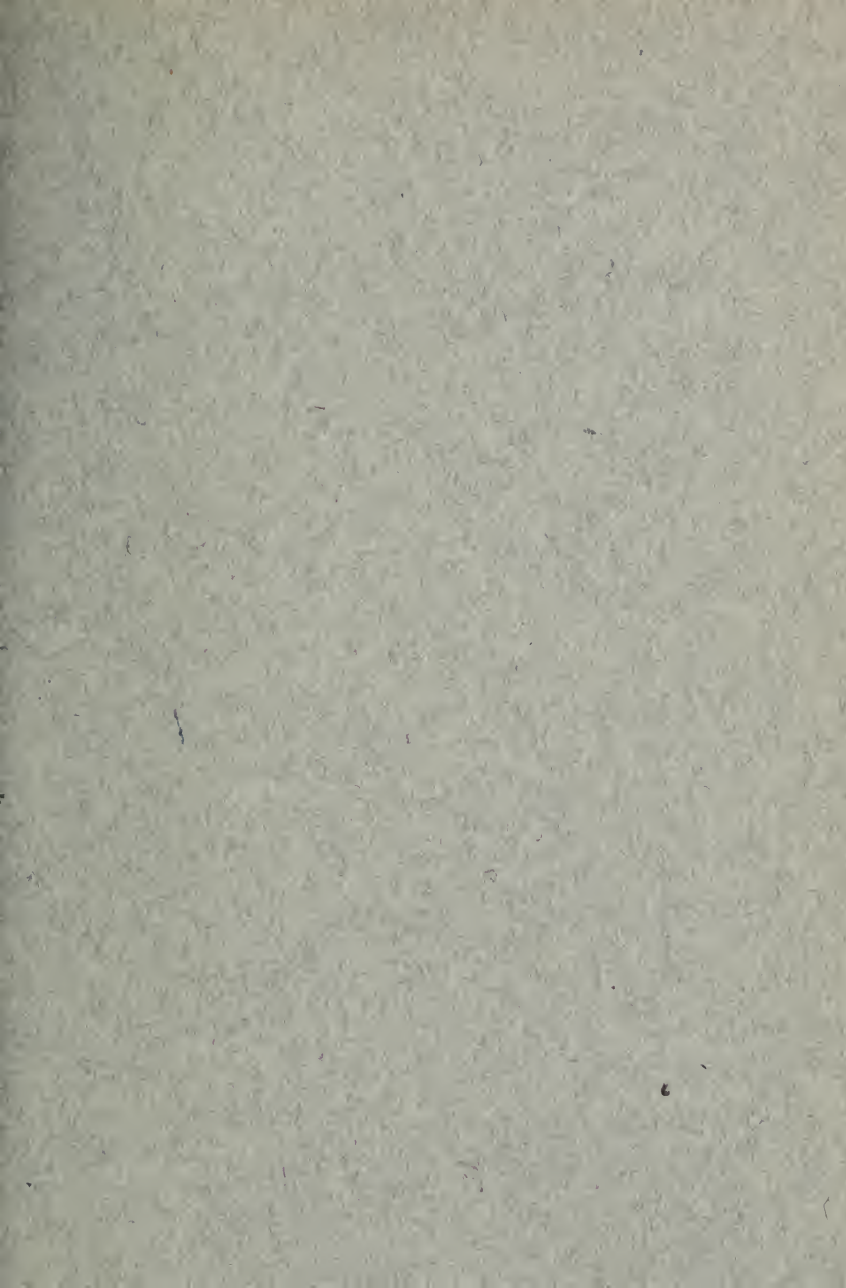
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UNIVERSITY OF COLORADO BULLETIN

Vol. XVII, No. 3 General Series No. 111

Published Monthly by the Regents of the University of Colorado.
Entered at the Post Office, Boulder, Colorado, as second-class mail matter.

CATALOGUE, 1916-1917



BOULDER, COLORADO, MARCH, 1917

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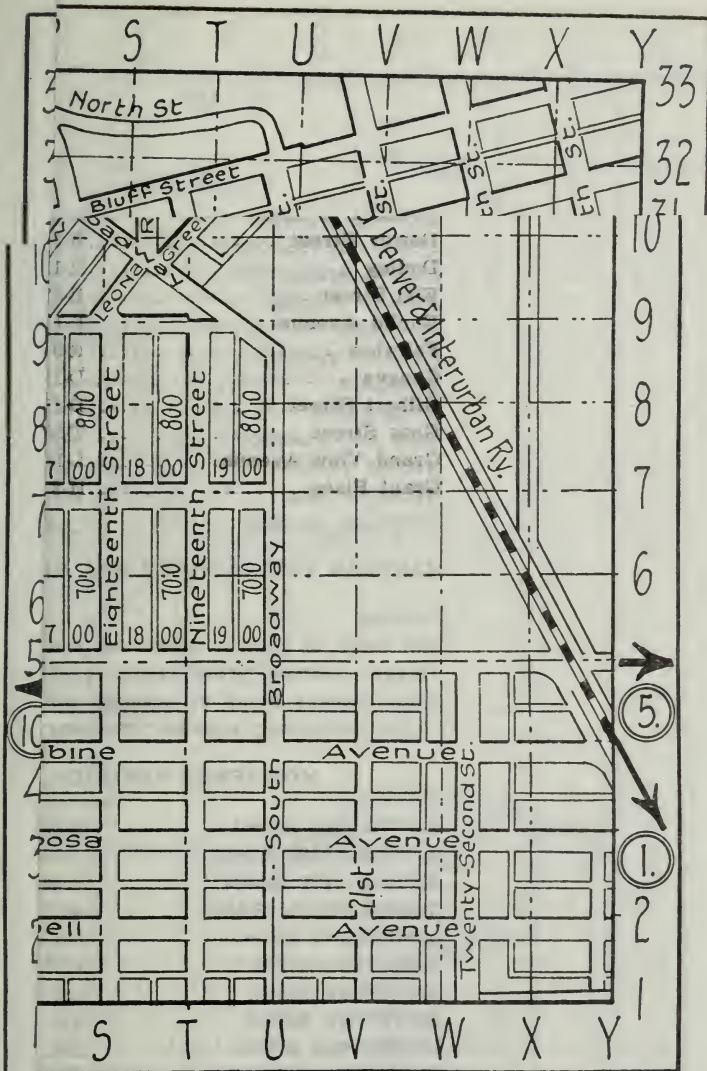
BOULDER, COLORADO, MARCH, 1917

The
University of Colorado
Catalogue, 1916-1917

With
Announcements for
1917-1918



Boulder, Colorado, March, 1917





BOULDER, COLORADO

NUMBERED STREETS.

(Running Approximately North and South.)

Fourth Street	.....A-29
Fifth Street	.....C-13, C-22, B-28
Sixth Street	.....E-11, D-22, D-26
Seventh Street	.....F-8, F-22, E-27
Eighth Street	.....G-8, G-23, F-27
Ninth Street	.....I-8, H-19, G-28
Tenth Street	.....K-8, G-30, H-26
Eleventh Street	.....L-8, J-23
Twelfth Street	.....M-8, K-24
Thirteenth StreetN-8, M-21
Fourteenth StreetO-8, M-26
Fifteenth StreetP-8, O-23
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Eighteenth StreetS-6, R-20
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Twenty-second StreetW-2, V-21, U-30
Twenty-third StreetX-20, W-27
Twenty-fourth StreetY-19, X-28
Twenty-fifth Street	.....X-32

NUMBERED AVENUES.

The numbered avenues run east and west, First Avenue being at extreme north of map (P-33). Second, Third, Fourth, Fifth and Sixth are north of First Avenue, and are not shown on map.

STREETS AND AVENUES NOT NUMBERED.

Arapahoe AvenueC-19, J-20, O-21
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Aurora AvenueL-9
Blue Bell AvenueR-2
Bluff StreetL-31, T-32
BroadwayM-17
Cascade AvenueL-7
Cleveland	.....D-10
College Avenue	.....K-13
College Street	.....Q-32
Columbine Avenue	.....R-4
Concord Avenue	.....B-30
Dewey Street	.....B-31
Dudley	.....R-11
Elm Street	.....B-32
Euclid Avenue	.....L-11, R-11
Fairview	.....R-9
Geneva	.....D-12
Gilbert Street	.....D-11
Goss Street	.....T-23
Grand View Avenue	.....L-18
Grant Place	.....H-8

Streets and Avenues Not Numbered—Cont'd.

Grove StreetT-22
Green MountainT-10
Hapgood StreetC-14
High StreetL-30
Highland AvenueB-26
Hill StreetK-28
Lincoln PlaceJ-8
Mapleton AvenueE-28
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MarshallB-16
Maxwell AvenueE-29
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RAILROADS AND HIGHWAYS.

- *1 Colorado and Southern (steam) and Denver and Interurban (electric) railroads to Denver (29 ml.), Eldorado Springs (8.7 ml.).
- *2 Colorado and Southern (steam) Railway to Greeley (70 ml.), Fort Collins (45 ml.), Cheyenne (91 ml.); Union Pacific (steam) Railroad to Brighton (27.7 ml.), Greeley (79.7 ml.).
- *3 Denver and Interurban (electric) Railroad to Denver (29 ml.).
- *4 Denver, Boulder and Western (steam) Railroad to Sunset (13.3 ml.), Sugar Loaf Mountain (17.3 ml.), Glacier Lake (22.4 ml.), Bluebird (26.7 ml.), Eldora (33.4 ml.), Ward (26.1 ml.), Nederland (32.0 ml.).
- *5 Automobile Road to Denver (32 ml.).
- *6 Automobile Road to Valmont (3.6 ml.), Longmont (17 ml.).
- *7 Automobile Road to Estes Park, the entrance to Rocky Mountain National Park, by way of Lyons and North St. Vrain or South St. Vrain (38.6 and 66 ml.); by way of Ward and Allen's Park (37 ml.).
- *8 Automobile Road up Boulder Canon to "Alpe" (4 ml.), Boulder Falls (12 ml.), Nederland (20 ml.), Eldora (24 ml.), Ward (22 ml.).
- *9 Automobile Road to Denver (34.5 ml.), Longmont (22 ml.), Loveland (39.7 ml.), Fort Collins (62 ml.), Greeley (61.2 ml.), Cheyenne (97.6 ml.).
- *10 Wagon Road up Flagstaff Mountain to Summit (4 ml.), Kossler's Ranch (6 ml.).
- *11 Wagon Road up Blue Bell Canon to Bluebell Springs (1 ml.), Royal Arch (4 ml.), Camel's Back (1 ml.).
- *12 Automobile Road up Sunshine Canon to Sunshine (8 ml.), Rowena (12 ml.), Gold Hill (12 ml.), Ward (20 ml.).

*The starred figures refer to the figures in circles on map margins.



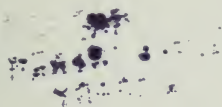
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University of Colorado Campus—Cont'd.

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University Station (24).....	S-15
Women's Building (12).....	O-14

RAILROADS AND HIGHWAYS.

- *1 Colorado and Southern (steam) and Denver and Interurban (electric) railroads to Denver (29 mi.) Eldorado Springs (8.7



1917

CALENDAR

1917

	Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.		Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.		Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
Jan.	7	1	2	3	4	5	6	May	6	7	8	9	10	11	12	Sept.	2	3	4	5	6	7	8
	14	15	16	17	18	19	20		13	14	15	16	17	18	19		9	10	11	12	13	14	15
	21	22	23	24	25	26	27		20	21	22	23	24	25	26		16	17	18	19	20	21	22
	28	29	30	31	---	---	---		27	28	29	30	31	---	---		23	24	25	26	27	28	29
Feb.	---	---	---	---	1	2	3	June	3	4	5	6	7	8	9	Oct.	---	1	2	3	4	5	6
	4	5	6	7	8	9	10		10	11	12	13	14	15	16		7	8	9	10	11	12	13
	11	12	13	14	15	16	17		17	18	19	20	21	22	23		14	15	16	17	18	19	20
	18	19	20	21	22	23	24		24	25	26	27	28	29	30		21	22	23	24	25	26	27
	25	26	27	28	---	---	---		---	---	---	---	---	---	---		28	29	30	31	---	---	---
Mar.	---	---	---	---	1	2	3	July	1	2	3	4	5	6	7	Nov.	4	5	6	7	8	9	10
	4	5	6	7	8	9	10		8	9	10	11	12	13	14		11	12	13	14	15	16	17
	11	12	13	14	15	16	17		15	16	17	18	19	20	21		18	19	20	21	22	23	24
	18	19	20	21	22	23	24		22	23	24	25	26	27	28		25	26	27	28	29	30	---
	25	26	27	28	29	30	31		29	30	31	---	---	---	---		---	---	---	---	---	---	---
Apr.	1	2	3	4	5	6	7	Aug.	---	---	---	---	---	---	---	Dec.	---	---	---	---	---	---	1
	8	9	10	11	12	13	14		5	6	7	8	9	10	11		2	3	4	5	6	7	8
	15	16	17	18	19	20	21		12	13	14	15	16	17	18		9	10	11	12	13	14	15
	22	23	24	25	26	27	28		19	20	21	22	23	24	25		16	17	18	19	20	21	22
	29	30	---	---	---	---	---		26	27	28	29	30	31	---		23	24	25	26	27	28	29
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1918

CALENDAR

1918

	Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.		Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.		Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
Jan.	---	---	1	2	3	4	5	May	5	6	7	8	9	10	11	Sept.	1	2	3	4	5	6	7
	6	7	8	9	10	11	12		12	13	14	15	16	17	18		8	9	10	11	12	13	14
	13	14	15	16	17	18	19		19	20	21	22	23	24	25		15	16	17	18	19	20	21
	20	21	22	23	24	25	26		26	27	28	29	30	31	---		22	23	24	25	26	27	28
	27	28	29	30	31	---	---		---	---	---	---	---	---	1		29	30	---	---	---	---	---
Feb.	3	4	5	6	7	8	9	June	2	3	4	5	6	7	8	Oct.	---	---	1	2	3	4	5
	10	11	12	13	14	15	16		9	10	11	12	13	14	15		6	7	8	9	10	11	12
	17	18	19	20	21	22	23		16	17	18	19	20	21	22		13	14	15	16	17	18	19
	24	25	26	27	28	---	---		23	24	25	26	27	28	29		20	21	22	23	24	25	26
	---	---	---	---	---	---	---		30	---	---	---	---	---	---		27	28	29	30	31	---	---
Mar.	---	---	---	---	1	2	---	July	---	1	2	3	4	5	6	Nov.	3	4	5	6	7	8	9
	3	4	5	6	7	8	9		7	8	9	10	11	12	13		10	11	12	13	14	15	16
	10	11	12	13	14	15	16		14	15	16	17	18	19	20		17	18	19	20	21	22	23
	17	18	19	20	21	22	23		21	22	23	24	25	26	27		24	25	26	27	28	29	30
	24	25	26	27	28	29	30		28	29	30	31	---	---	---		---	---	---	---	---	---	---
	31	---	---	---	---	---	---		---	---	---	---	---	---	---		---	---	---	---	---	---	---
Apr.	---	1	2	3	4	5	6	Aug.	4	5	6	7	8	9	10	Dec.	---	---	---	---	---	---	---
	7	8	9	10	11	12	13		11	12	13	14	15	16	17		1	2	3	4	5	6	7
	14	15	16	17	18	19	20		18	19	20	21	22	23	24		8	9	10	11	12	13	14
	21	22	23	24	25	26	27		25	26	27	28	29	30	31		15	16	17	18	19	20	21
	28	29	30	---	---	---	---		---	---	---	---	---	---	---		22	23	24	25	26	27	28
	---	---	---	---	---	---	---		---	---	---	---	---	---	---		29	30	31	---	---	---	---

ANNOUNCEMENTS

1917.

- Jan. 17, Wednesday ...Meeting of Board of Regents.
Jan. 29, MondaySecond Semester begins.
Feb. 12, MondayLincoln's Birthday (Holiday).
Feb. 22, ThursdayWashington's Birthday (Holiday).
Mar 31, Saturday to
Apr. 8, SundaySpring Recess.
Apr. 18, Wednesday ..Meeting of Board of Regents.
Apr. 20, FridayArbor Day (Holiday).
May 19, SaturdayHigh-School Day.
May 30, Wednesday ...Decoration Day (Holiday).
June 1, FridayAll examinations completed.
June 2, SaturdayPhi Beta Kappa Exercises.
 Sigma Xi Exercises.
June 3, SundayBaccalaureate Address.
June 4, MondaySenior Class Play.
 Meeting of Board of Regents.
June 5, TuesdayClass Day Exercises and Parade.
 President's Reception.
 Alumni Banquet and Reception.
 Senior Promenade.
June 6, Wednesday ...Commencement.
June 7, ThursdaySummer Vacation begins.
June 25, to August 4...Summer Session.
Sept. 3, MondayMeeting of Board of Regents.

ACADEMIC YEAR, 1917-1918

- Sept. 10, MondayFirst Semester begins; Registration (Registration begins Friday, Sept. 7).
Sept. 11, TuesdayAssembly of Students at 11:00.
Oct. 12, FridayColumbus Day (Holiday).
Nov. 14, Wednesday ..Meeting of Board of Regents.
Nov. 29, ThursdayThanksgiving Day (Holiday).
Nov. 30, FridayHoliday.
Dec. 22, Saturday to
Jan. 6, SundayWinter Recess.

BOARD OF REGENTS

CHARLES R. DUDLEY.....	Denver
Term expires, 1918.	
JAMES B. RAGAN.....	Denver
Term expires, 1918.	
MINNIE LAHM HARDING.....	Canon City
Term expires, 1920.	
CLIFFORD C. PARKS.....	Glenwood Springs
Term expires, 1920.	
THOMAS T. BARNARD.....	Victor
Term expires, 1922.	
CLIFFORD W. MILLS.....	Denver
Term expires, 1922.	

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FRANK H. WOLCOTT.....	Boulder.....	Secretary
CHARLES H. CHENEY.....	Boulder.....	Treasurer

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AUDITING—Messrs. Dudley, Mills, Farrand.
BUILDINGS AND GROUNDS—Messrs. Dudley, Ragan, Farrand.
FINANCE—Mr. Parks, Mrs. Harding.
LIBRARY—Messrs. Dudley, Barnard, Smith.
INSTRUCTORS—Messrs. Farrand, Ragan, Mills.

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P. G. SCOTT.....	Las Animas.....	Bent
ALLEN M. LAMBRIGHT.....	Las Animas.....	Bent
THOMAS BUTLER.....	Longmont	Boulder
GEORGE H. CURFMAN, M.D.....	Salida	Chaffee
E. P. HICKMAN.....	Cheyenne Wells.....	Cheyenne
ALBERT A. STOVER.....	Idaho Springs.....	Clear Creek
FREDERICK W. SWANSON.....	Alamosa	Conejos
CHARLES GROENENDYKE.....	San Luis.....	Costilla Crowley
JOHN H. LEARY.....	Westcliffe	Custer
BURTON P. SMITH.....	Delta	Delta
GUSTAVE C. BARTELS.....	Denver	Denver
CLAYTON C. DORSEY.....	Denver	Denver
NELSON FRANKLIN.....	Denver	Denver
IRVING HALE.....	Denver	Denver
HORACE N. HAWKINS.....	Denver	Denver
EDWIN H. PARK.....	Denver	Denver
A. DUPONT PARKER.....	Denver	Denver
FRANK E. SHEPARD.....	Denver	Denver
JOHN W. SPRINGER.....	Denver	Denver
THOMAS B. STEARNS.....	Denver	Denver
THOMAS L. WILKINSON.....	Denver	Denver
CHARLES MACALLISTER WILLCOX....	Denver	Denver
MRS. ANNA WOLCOTT VAILE.....	Denver	Denver Dolores
JOHN ANDERSON.....	Castle Rock.....	Douglas
JAMES DILTS.....	Eagle	Eagle
WILLIAM D. REILLY.....	Kiowa	Elbert
JOSEPH F. HUMPHREY.....	Colorado Springs.....	El Paso
ROBERT KERR.....	Colorado Springs.....	El Paso

* The members of the Advisory Board are appointed by the Regents for a term of one year. The service is without compensation. Annual meetings of the Advisory Board are held at the University, Tuesday and Wednesday of Commencement Week.

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MATT N. LINES.....	Canon City.....	Fremont
JAMES G. JOHNSTON.....	Florence	Fremont
BARNETTE T. NAPIER.....	Glenwood Springs.....	Garfield
CHASE WITHROW.....	Central City.....	Gilpin
DAVID P. HOWARD.....	Sulphur Springs.....	Grand
JOHN A. LEHRITTER.....	Gunnison	Gunnison
BENJAMIN F. CUMMINGS, M.D.....	Lake City.....	Hinsdale
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OWEN S. CASE.....	Walden	Jackson
WILLIAM G. SMITH.....	Golden	Jefferson
RAYMOND MILLER.....	Galatea	Kiowa
WILLIAM D. SELDER.....	Burlington	Kit Carson
CHARLES CAVENDER.....	Leadville	Lake
CHARLES A. PIKE.....	Durango	La Plata
FRANK J. ANNIS.....	Fort Collins.....	Larimer
JOSEPH C. BELL.....	Trinidad	Las Animas
EDWARD H. DAY.....	Trinidad	Las Animas
EUSEBIO CHACON.....	Trinidad	Las Animas
		Lincoln
L. K. PARR.....	Padroni	Logan
HORACE T. DELONG.....	Grand Junction.....	Mesa
		Mineral
ROBERT M. RICHARDSON.....	Craig	Moffat
LEONARD H. CLARK, M.D.....	Mancos	Montezuma
J. F. COLEMAN, M.D.....	Montrose	Montrose
FREDERICK W. LOCKWOOD, M.D.....	Fort Morgan.....	Morgan
ROBERT W. PATTERSON.....	La Junta.....	Otero
G. M. DAMERON.....	La Junta.....	Otero
WILLIAM W. ROWAN, M.D.....	Ouray	Ouray
		Park
R. G. McKIBBEN.....	Holyoke	Phillips
		Pitkin
JOHN C. HORN.....	Lamar	Prowers
C. B. THOMAN.....	Lamar	Prowers
J. K. DOUGHTY.....	Lamar	Prowers
ALVA ADAMS.....	Pueblo	Pueblo
P. J. DUGAN.....	Pueblo	Pueblo
JAMES LYTTLE.....	Meeker	Rio Blanco
ROBERT G. BRECKENRIDGE.....	Monte Vista	Rio Grande

	Town.	County.
JOHN A. BILES, M.D.....	<i>Del Norte</i>	<i>Rio Grande</i>
BENJAMIN F. NIESZ.....	<i>Steamboat Springs</i>	<i>Routt</i>
CHARLES TARBELL.....	<i>Saguache</i>	<i>Saguache</i>
WILLIAM J. KING.....	<i>Villa Grove</i>	<i>Saguache</i>
JOHN T. JOYCE.....	<i>Silverton</i>	<i>San Juan</i>
STEPHEN A. BAILEY.....	<i>Telluride</i>	<i>San Miguel</i>
BERTRAND D. PARKER, JR.....	<i>Julesburg</i>	<i>Sedgwick</i>
CLARENCE O. FINCH.....	<i>Julesburg</i>	<i>Sedgwick</i>
WILLIAM F. FORMAN.....	<i>Breckenridge</i>	<i>Summit</i>
GRIFFITH R. LEWIS.....	<i>Cripple Creek</i>	<i>Teller</i>
HAROLD D. THOMPSON.....	<i>Cripple Creek</i>	<i>Teller</i>
EGBERT MORE.....	<i>Akron</i>	<i>Washington</i>
GEORGE D. STATLER.....	<i>Greeley</i>	<i>Weld</i>
THOMAS B. GROVES.....	<i>Wray</i>	<i>Yuma</i>

COLLEGES AND SCHOOLS OF THE UNIVERSITY

I. COLLEGE OF LIBERAL ARTS:

Leading to the degree A.B.

College of Commerce:

Leading to the degree A.B. and special certificate.

College of Education:

Leading to the degree A.B. and special certificate.

School of Social and Home Service:

Leading to certificate of work done.

II. COLLEGE OF ENGINEERING:

Civil Engineering, leading to the degree B.S. (C.E.).

Electrical Engineering, leading to the degree B.S. (E.E.).

Mechanical Engineering, leading to the degree B.S. (M.E.).

Chemical Engineering, leading to the degree B.S. (Ch.E.).

III. GRADUATE SCHOOL:

Leading to the degrees Ph.D. and A.M.; M.S., C.E., E.E.,
and M.E.; D.Oph., D.P.H., M.S. (P.H.), and M.S. (San.
Eng.).

IV. SCHOOL OF MEDICINE:

Leading to the degree M.D.

V. SCHOOL OF LAW:

Leading to the degree LL.B.

VI. COLLEGE OF PHARMACY:

Leading to the degrees Ph.C. and B.S. (Phar.).

VII. SUMMER SESSION.

VIII. UNIVERSITY EXTENSION DIVISION:

Department of Instruction:

Correspondence Instruction.

Public School Service:

Educational Research.

Academic Instruction.

Visual Instruction.

Vocational Instruction.

Department of Public Service:

Lectures.

Community Welfare.

Library Extension.

Business Men's Short Course.

Publications.

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THOMAS E. TAYLOR, A.B., M.D., Professor of Obstetrics, Emeritus.
†ALBERT A. REED, LL.B., Professor of Law.
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E. BARBER QUEAL, M.D., Professor of Physiology.
FRED B. R. HELLEMS, Ph.D., LL.D., Dean of the College of Liberal Arts; Professor of Latin.
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GEORGE NORLIN, Ph.D., Professor of Greek.
††FRANCIS RAMALEY, Ph.D., Professor of Biology.
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Charles Inglis Thomson Professor of Law.
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MILO S. KETCHUM, C.E., Dean of the College of Engineering; Professor of Civil Engineering.
RICHARD W. CORWIN, M.D., LL.D., Professor of Surgery.
CHARLES B. LYMAN, M.D., Professor of Surgery.
JOHN M. FOSTER, M.D., Professor of Oto-laryngology.
EDWARD JACKSON, A.M., M.D., Sc.D., Professor of Ophthalmology.

* Professors, Assistant Professors, Lecturers, and Instructors are arranged in the order of appointment. Assistants rank as their departments. Within the general faculty are organized the Advisory Council, Senate, and faculties of the several schools and colleges.

† On leave of absence, 1916-1917.

†† On leave of absence, second semester, 1916-1917.

HERBERT S. EVANS, E.E., Professor of Electrical Engineering.

JOHN A. HUNTER, M.E., Professor of Mechanical Engineering.

THEODORE D. A. COCKERELL, Sc.D., Professor of Zoology.

GEORGE M. CHADWICK, Professor of Music.

JAMES F. WILLARD, Ph.D., Professor of History.

OLIVER C. LESTER, Ph.D., Professor of Physics.

FRANK E. THOMPSON, A.B., Director of the College of Education;
Professor of Education.

ROSS C. WHITMAN, A.B., M.D., Secretary of the School of Medicine,
Boulder Division; Professor of Pathology.

JUNIUS HENDERSON, A.B., Curator of the Museum; Professor of
Natural History.

*JOHN S. McLUCAS, A.M., Professor of English.

GRACE VAN SWERINGEN BAUR, Ph.D., Professor of Germanic Lan-
guages.

OSCAR M. GILBERT, M.D., Professor of Medicine (Clinical Medicine).

ALVIN R. PEEBLES, M.D., Director of the Henry S. Denison Research
Laboratory; Professor of Preventive and Experimental Medi-
cine.

CLOUGH T. BURNETT, M.D., Professor of Bacteriology.

MILO G. DERHAM, Ph.D., Director of the Summer Session; Profes-
sor of Latin.

LAWRENCE W. COLE, Ph.D., Director of the School of Social and
Home Service; Professor of Psychology.

GEORGE E. NEUHAUS, M.D., Professor of Neurology and Psychiatry.

HENRY SEWALL, Ph.D., M.D., Sc.D., Professor of Medicine.

EDMUND J. A. ROGERS, A.M., M.D., Professor of Surgery, Emeritus.

THOMAS H. HAWKINS, A.M., M.D., LL.D., Professor of Surgery,
Emeritus.

ROBERT LEVY, M.D., Professor of Oto-laryngology.

WILLIAM H. DAVIS, M.D., Professor of Dermatology and Genito-
Urinary Diseases.

WILLIAM J. ROTHWELL, M.D., Professor of Medicine, Emeritus.

FRANCIS H. McNAUGHT, M.D., Professor of Obstetrics.

LEONARD FREEMAN, B.S., A.M., M.D., Professor of Surgery.

JOSIAH N. HALL, B.S., M.D., Professor of Medicine.

CHARLES A. POWERS, A.M., M.D., Professor of Surgery, Emeritus.

CHARLES F. SHOLLENBERGER, M.D., Professor of Medicine (Pedi-
atrics).

* On leave of absence, 1916-1917.

HOWELL T. PERSHING, M.S., M.D., LL.D., Professor of Neurology and Psychiatry.

HERBERT B. WHITNEY, A.B., M.D., Professor of Medicine, Emeritus.

HORACE G. HARVEY, A.B., M.D., Professor of Surgery.

SHERMAN G. BONNEY, A.M., M.D., Professor of Medicine, Emeritus.

MOSES KLEINER, M.D., Professor of Therapeutics.

GEORGE B. PACKARD, M.D., Professor of Surgery (Orthopedics).

T. MITCHELL BURNS, M.D., Professor of Obstetrics.

WALTER A. JAYNE, M.D., Professor of Surgery (Gynecology and Abdominal Surgery).

CHARLES B. VAN ZANT, M.D., Professor of Physiology.

MELVILLE BLACK, M.D., Professor of Ophthalmology.

WILLIAM C. MITCHELL, M.D., Professor of Bacteriology, Emeritus.

DAVID H. COOVER, M.D., Professor of Ophthalmology.

SAMUEL B. CHILDS, A.B., M.D., Professor of Roentgenology.

JAMES H. PERSHING, A.B., Professor of Medical Jurisprudence.

WILLIAM C. BANE, M.D., Professor of Oto-laryngology.

JAMES C. TODD, Ph.B., M.D., Professor of Clinical Pathology.

WILLIAM H. SHARPLEY, M.D., Professor of Medicine (Contagious Diseases).

CARBON GILLASPIE, M.D., Professor of Anatomy.

HOMER C. WASHBURN, Ph.C., B.S. (Phar.), Dean of the School of Pharmacy; Professor of Pharmacy.

ARTHUR J. MARKLEY, D.D.S., M.D., Professor of Dermatology.

LORAN D. OSBORN, Ph.D., Director of the Extension Division; Professor of Sociology.

FREDERICK A. BUSHEE, Ph.D., Director of the College of Commerce; Professor of Economics and Sociology.

RALPH D. CRAWFORD, Ph.D., Professor of Mineralogy and Petrology.

HARRY A. CURTIS, B.S. (Ch.E.), Ph.D., Professor of Physical Chemistry.

FRED G. FOLSOM, A.B., LL.B., Professor of Law.

WILLIAM R. ARTHUR, A.B., LL.B., Professor of Law.

CHARLES N. MEADER, A.B., M.D., Dean of the School of Medicine; Professor of Medicine.

SCOTT ROWLEY, B.L., LL.B., Acting Professor of Law.

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WALTER W. REED, M.D., Assistant Professor of Obstetrics.

S. ANTOINETTE BIGELOW, A.M., Dean of Women; Assistant Professor of English Literature.

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JACOB CAMPBELL, M.D., Assistant Professor of Surgery.

EDWARD F. DEAN, M.D., Assistant Professor of Surgery (Clinical Surgery).

AUBREY H. WILLIAMS, M.D., Assistant Professor of Surgery (Clinical Surgery).

C. HENRY SMITH, Ph.B., Librarian; Assistant Professor of Bibliography.

WILLIAM A. COOK, Ph.D., High-School Visitor; Assistant Professor of Education.

WHITNEY C. HUNTINGTON, C.E., Assistant Professor of Civil Engineering.

HOWARD E. PHELPS, C.E., Assistant Professor of Civil Engineering.

MAX M. ELLIS, Ph.D., Sc.D., Assistant Professor of Biology.

CARL C. ECKHARDT, Ph.D., Assistant Professor of History.

FRANK S. BAUER, M.E., Assistant Professor of Mechanical Engineering.

FRANK L. CLAPP, Ph.D., Secretary of the Bureau of Public School Service; Assistant Professor of Education.

*PHILIP G. WORCESTER, A.M., Assistant Professor of Geology.

WILLIAM F. BAUR, Ph.B., Assistant Professor of Germanic Languages.

FRANK G. ALLEN, B.S. (M.E.), Assistant Professor of Engineering Drawing.

CHARLES S. SPERRY, A.B., C.E., Assistant Professor of Engineering Mathematics.

ARNOLD J. LIEN, Ph.D., Assistant Professor of Political Science.

JAY W. WOODROW, Ph.D., Assistant Professor of Physics.

ROBERT C. LEWIS, Ph.D., Assistant Professor of Physiology and Biochemistry.

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HERBERT B. DWIGHT, E.E., Assistant Professor of Electrical Engineering.

JAMES N. ASHMORE, Director of Physical Education.

HELEN MASTERS BUNTING, Director of Physical Education for Women.

* On leave of absence, 1916-1917.

JOHN CAMPBELL, A.M., LL.B., LL.D., Dean of the School of Law,
Emeritus; Lecturer on Law of Municipal Corporations.

ROBERT S. MORRISON, Lecturer on Law of Mines and Mining.

JOHN A. RINER, LL.B., Lecturer on International Law.

WILLARD J. WHITE, A.M., M.D., Lecturer on Medical Jurisprudence.

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inations.

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WILLIAM MACLEOD RAINE, A.B., Lecturer on Journalism.

HENRY E. LUTZ, LL.B., Lecturer on Equity Pleading and Practice.

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LYMAN P. WELD, LL.B., Lecturer on Conveyancing and Abstracts.

*EDWARD B. TROVILLION, M.D., Instructor in Anatomy.

FRANK R. SPENCER, A.B., M.D., Instructor in Oto-laryngology.

CLAY E. GIFFIN, A.B., M.D., Instructor in Surgery.

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JOHN W. AMESSE, M.D., Instructor in Medicine.

CHARLES F. POE, A.M., B.S. (Phar.), Instructor in Chemistry.

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PAUL M. DEAN, Ph.D., Instructor in Chemistry.

SAMUEL S. KINGSBURY, Ph.D., Instructor in Education.

TRACY R. LOVE, Ph.B., M.D., Instructor in Medicine.

PHILIP HILLKOWITZ, B.S., M.D., Instructor in Pathology.

DONALD MCFAYDEN, B.D., Ph.D., Instructor in History.

LORENA UNDERHILL, A.M., Instructor in Philosophy.

RUTH M. SHELEDY, A.M., Instructor in German.

JOHN H. V. FINNEY, B.S. (E.E.), Instructor in Physics.

JESSIE HUTSINPILLAR, A.M., Instructor in English.

MARIE SORENSON, A.M., Instructor in English.

CLARIBEL KENDALL, A.M., Instructor in Mathematics.

FRANCIS WOLLE, A.M., Instructor in English Literature.

* Died, December 22, 1916.

WILLIAM J. CHRISTIAN, B.S. (M.E.), Instructor in Mechanical Engineering.

CHARLES M. MCCORMICK, E.E., Instructor in Electrical Engineering.

HENRY M. SAYRE, Instructor in Accounting.

SAMUEL FOSDICK JONES, M.D., Instructor in Surgery (Orthopedics).

HENRY WILLIAMS WILCOX, M.D., Instructor in Surgery (Orthopedics).

CYRUS L. PERSHING, B.S., M.D., Instructor in Neurology.

CLAUDE EDWARD COOPER, A.B., M.D., Instructor in Oto-laryngology.

EDWARD WELLES COLLINS, M.D., Instructor in Oto-laryngology.

RUDOLPH W. ARNDT, M.D., Instructor in Medicine.

ROBERT L. CHARLES, M.D., Instructor in Anaesthesia.

WILLIAM H. CRISP, M.D., D.Oph., Instructor in Ophthalmology.

FLORENCE GALLIGAN JOSLYN, A.M., Instructor in Education.

JAMES L. MERRILL, B.S. (C.E.), Instructor in Engineering Drawing.

WALTER F. MALLORY, B.S. (M.E.), Instructor in Mechanical Engineering.

CLARENCE L. ECKEL, B.S. (C.E.), Instructor in Civil Engineering.

EDWARD R. MUGRAGE, A.M., M.D., Instructor in Pathology.

DOROTHY M. BURTON, A.B., Instructor in English Literature.

ERSKINE R. MYER, A.B., Instructor in English.

EDNA REYNOLDS, A.M., Instructor in Psychology.

EDUARD F. GRUNDHOEFFER, B.S. (M.E.), Instructor in Mechanical Engineering.

WILLIAM WILEY JONES, A.B., M.D., Instructor in Medicine.

MAUD E. CRAIG, A.M., Instructor in Latin.

ARTHUR T. EVANS, A.M., Instructor in Biology.

EDWIN B. PLACE, A.M., Instructor in Romance Languages.

IRENE P. MCKEEHAN, A.B., Instructor in English.

ELMORE PETERSEN, A.B., Instructor in the University Extension Division.

ARTHUR E. GILMAN, A.B., Instructor in the University Extension Division.

HUGH C. PRYOR, A.M., Instructor in Education.

HELEN G. MARTIN, A.M., Instructor in the University Extension Division.

JOHN J. FLACH, B.S. (E.E.), Instructor in Engineering Mathematics.

GEORGE P. LINGENFELTER, M.D., Instructor in Dermatology.

HELEN FRANCES CRAIG, B.S., M.D., Instructor in Pathology.

CLAIR V. MANN, B.S. (C.E.), Instructor in Engineering Mathematics.

JAMES H. COWLES, A.B., Instructor in Life Insurance and Extension Instructor.

R. CLARE COFFIN, A.B., Instructor in Geology.

GEORGE H. LIGHT, Ph.D., Instructor in Mathematics.

CLIFFORD BANTA, A.M., Instructor in Chemistry.

ROBERT M. BURNS, A.M., Instructor in Chemistry.

OSCAR A. RANDOLPH, Ph.D., Instructor in Physics.

GLADYS C. CURTIS, A.M., Instructor in Education.

ALICE DOWNING, A.M., Instructor in English.

OLIN INGRAHAM, A.M., Instructor in Economics.

*HARVEY W. HESS, A.B., LL.B., Instructor in English.

MATT W. MOYLE, B.S. (M.E.), Instructor in Mechanical Engineering.

WILLARD W. RUSK, B.S., (C.E.), Instructor in Civil Engineering.

ELBERT L. MCGRATH, B.S. (C.E.), Instructor in Engineering Mathematics.

*CHESTER H. ELLIOTT, M.S., M.D., Instructor in Histology.

GLAISTER H. ASHLEY, A.B., M.D., Instructor in Public Health.

BEATRICE BOLAN, Instructor in Physical Education for Women.

JAMES C. STEPHENS, A.B., Instructor in the University Extension Division.

†CHARLES GAUGER, A.B., Instructor in English.

†HAZEL A. CLAMPITT, Instructor in English.

MAY SNYDER, A.B., Assistant in Romance Languages.

LESLIE T. ROSS, A.B., Assistant in Romance Languages.

EDWIN D. HULL, M.S., Assistant in Biology.

DUANE L. SIMPKINS, A.B., Assistant in Chemistry.

EVA M. BAUM, A.B., Assistant in Chemistry.

ICIE G. MACY, A.B., B.S., Assistant in Chemistry.

NORMAN E. A. HINDS, A.B., Assistant in Geology.

FREDERICK W. SANBORN, A.B., Assistant in History.

GRACE M. FAIRCHILD, A.B., Assistant in Education.

ADA MORRIS, A.B., Assistant in Education.

FLORENCE FARRINGTON, A.M., Assistant in German.

* Resigned, February 1, 1917.

† Appointed, February 1, 1917.

FRIEDA MEENTS, A.B., Assistant in German.
HAROLD P. MUNCK, A.B., Assistant in Economics.
CRANSTON B. RADER, Assistant in Electrical Engineering.
MORRIS KATZMAN, Assistant in Pathology.
OTTO S. KRETSCHMER, A.B., Assistant in Bacteriology.
WALTER L. BACH, Assistant in Histology.
EVERETT H. MUNRO, Assistant in Anatomy.
THADDEUS P. SEARS, A.B., Assistant in Physiology and Biochemistry.
RUSSELL N. LOOMIS, Ph.C., Assistant in Pharmacy and in Chemistry.
AGNES P. BECHMANN, Ph.C., Assistant in Pharmacy.
EDWIN PATTON, Assistant in Gymnasium.
ELMER HARRIS, Assistant in Gymnasium.

FRED E. HAGEN, A.B., Secretary and Registrar.
F. GRACE HALL, A.B., Assistant Registrar.
RUTH N. CRARY, A.B., Assistant Recorder.
FRANK H. WOLCOTT, B.S., Secretary of the Board of Regents and Bursar.
C. HENRY SMITH, Ph.B., Librarian.
EMMA A. JACKSON, A.B., Assistant Librarian.
ELIZABETH F. SELLECK, A.B., Assistant Librarian.
LILLIAN CHAPPEL, Assistant Librarian.
ARLENE DILTS, A.B., Law Librarian.
MARTHA SCHOTH, Assistant in Library.
H. SPENCER GELTZ, Clerk of the College of Education.
JOSEPH KLEMME, Superintendent of Buildings and Grounds.

GENERAL STATEMENT

HISTORY

The University of Colorado was incorporated by an act of the First Territorial Legislature of Colorado, in 1861, and the location fixed at Boulder. The act states that the University was "designated to promote and encourage the diffusion of knowledge, in all the branches of learning, including the scientific, literary, theological, legal and medical departments of instruction". A board of trustees with needful powers was constituted, but never met to transact business. A second act of the year 1870 revived the project of a university at Boulder and reconstituted the board of trustees. In 1872, three public-spirited citizens of Boulder gave the University fifty-two acres of land adjoining the city. In 1874, the Territorial Legislature appropriated \$15,000 to the University, conditioned on the raising by the trustees of an equal amount "by subscription, donation, or otherwise". The trustees having met this condition, the first installment of the appropriation was paid on June 7, 1875. Plans for the erection of a building were then made. In 1875, Congress "set apart and reserved for the use and support of a state university" seventy-two sections of public lands. The Constitution of Colorado, adopted in 1876, made the "University at Boulder" an institution of the State, thus entitling it to the lands appropriated by Congress, and provided for its management and control, as follows: "The Board of Regents shall have the general supervision of the University, and the exclusive control and direction of all funds of, and appropriations to, the University". The University is supported by the proceeds of a tax of approximately one-fifth of a mill and by special appropriations.

The Institution was opened September 5, 1877, with two departments, Preparatory and Normal. After a few years the Normal department was dropped, and in 1907 the Preparatory department was discontinued. The University comprises the following schools and colleges: College of Liberal Arts, 1878; School of Medicine, 1883; Graduate School, 1892; School of Law, 1892; College of Engineering, 1893; Summer Session, 1904; College of Commerce, 1906;

College of Education, 1908; College of Pharmacy, 1911; University Extension Division, 1912; and School of Social and Home Service, 1912.

SITUATION

The University is situated at Boulder, a city of 12,000 inhabitants, about thirty miles north from Denver. The Denver and Interurban Railway, with hourly electric service, and the Colorado and Southern and Union Pacific railways connect Boulder and Denver.

BUILDINGS AND GROUNDS

The University campus comprises sixty acres; Stratton Field, northeast of the main campus and about one-quarter mile distant, twelve acres. The University buildings are Heating, Lighting and Power Plant, Macky Auditorium, Library, Woodbury Hall (Men's Dormitory), Women's Building, Men's Building, Gymnasium, President's House, Liberal Arts Building, Hale Science Building, Chemistry Building, New Science and Museum Building, Engineering Building, Shops Building, Medical Building, Henry S. Denison Memorial Building, Hospital, Nurses' Home, Isolation Hospital, Simon Guggenheim Law Building, Pharmacy Building. Of these, eighteen have been erected by the State, and the Macky Auditorium, the Henry S. Denison Memorial Building, and the Simon Guggenheim Law Building have been erected by private benefaction. For the use of the third and fourth years of the School of Medicine, a building located at Thirteenth and Welton Streets, Denver, is rented.

LIBRARY

The Library numbers 100,307 bound volumes, 32,000 pamphlets, and 1,750 maps. Direct access to the shelves is the rule. The main library is open to all during term time from 7:45 a. m. to 10:00 p. m., week days, except Friday and Saturday, when the closing hour is 9:00 p. m. Vacation hours are 9:00 a. m. to 5:00 p. m., week days.

The main library occupies the central portion of the Library Building. 73,000 books are shelved within its walls. Three hundred people may be seated at the different reading tables at one time. A card catalogue numbering upwards of 209,000 cards, giving authors and subjects, directs seekers to books or portions thereof.

Departmental libraries are maintained for Biology, Chemistry, Denison Research Laboratory, Education, Engineering, Geology, German, Law, Mathematics, Museum, Music, Pharmacy, Physics, and

School of Medicine (Denver). Through this system over 27,000 volumes upon special subjects are deposited in the building where the particular subject is taught.

Through library extension, books not in actual demand for resident use may be borrowed by citizens of Colorado.

ENTRANCE

Persons intending to enter the University must present their credentials to the Registrar before registration. Certificates from accredited high schools, signed by the proper authorities and indicating the character and extent of the work completed, are accepted. Certificates of the New York State Board of Regents and similar bodies and of the College Entrance Examination Board and credits of a non-accredited high school may be accepted provisionally, full standing being conditional on the subsequent work of the student concerned.

Students seeking advanced standing must present in addition to the above an official record of their college or university work, a marked catalogue, and a letter of honorable dismissal from the institution last attended. Real equivalents will be accepted. Advanced standing will not be definitely determined until the student has completed at least one semester's work in this University.

No statement of the entrance status of an applicant can be given by the Registrar until he has before him complete credentials.

Students are earnestly advised to be present at the opening of a semester. In the School of Medicine no student will be allowed to enter later than the second Monday after the opening of the University.

An information bureau for the convenience of new students may be found in the Registrar's office in the Macky Auditorium. The rooms of the Christian Associations, and of the Women's League are open for the reception of students during the opening days of the University.

The Registrar's office is open for registration, beginning Friday morning preceding the opening day of the University. All students are requested to register as soon as possible. Students continuing work in the department in which they have been previously enrolled, register first with the Dean and then with the Registrar. New students, and old students transferring from one department to another, register first in the Registrar's office.

REQUIREMENTS FOR ADMISSION

THE COLLEGE OF LIBERAL ARTS. COLLEGE OF COMMERCE. COLLEGE OF
EDUCATION. AND SCHOOL OF SOCIAL AND HOME SERVICE

Candidates for admission are expected to be graduates of a standard four-year high or preparatory school and *must present fifteen acceptable units*. Applications from candidates who have completed an equivalent amount of work under other conditions will be considered on the merits of each case; in general, such candidates will be expected to pass entrance examinations.

Certificates of moral character may be required from all applicants.

Entrance conditions will not be allowed beyond one unit, and then only upon recommendation of the principal of the school from which the candidate graduated. This applies to all students, including graduates of commercial and other courses wherein some of the subjects are not accepted for University matriculation.

Candidates with fifteen acceptable units, coming from a standard four-year high or preparatory school, who are not graduates, may be admitted on the recommendation of the principal.

A unit course of study is defined as a course covering a school year of not less than thirty-six weeks, with five periods of at least forty-five minutes each per week, two periods of Manual Training or Laboratory work being equivalent to one period of classroom work. This is equivalent to one hundred and eighty actual "periods" per unit. The fifteen units are equivalent to thirty "points."

The fifteen units should be distributed as follows:

Mathematics	2
Languages other than English.....	4
English	3
History	2
Science	2
Electives	2
	—
	15

Electives may be chosen from the following: Mathematics, 2; Greek, 2; Latin, 2; French, 2; German, 2; Spanish, 2; History, 2; English, 1; Science, 2; Psychology, $\frac{1}{2}$. From the following group, subject to special accrediting by the University, not more than three

units: Drawing, 1; Manual Arts, 2; Domestic Science, 1; Agriculture (Introductory Science), 1; Commercial Geography, $\frac{1}{2}$; Commercial Law, $\frac{1}{2}$; Elementary Economics, $\frac{1}{2}$.

Students who do not present the units specified in the above table of requirements for admission, but who do present fifteen acceptable units, will be regularly admitted. Such students will, however, be required to elect in College courses that will fulfill the requirements specified, e. g., if a student enters with but two units of Language other than English, then he must include in his College course the equivalent of two units in foreign language. This provision materially widens the scope of electives that will be accepted for College entrance.

1. Half units will not be accepted in Physics and Chemistry.

2. Students who present three units of Greek are required to present only one unit of Science, but they must have a total of fifteen units.

3. For the foreign language requirement not more than two languages can be presented. Four units of Latin are preferred, at least two units urgently advised.

Special Students.

Persons of mature years, even if they are unable to meet the entrance requirements, may be admitted to certain courses on the approval of the departments concerned and the Committee on Courses. In no case will applications be considered from persons who are not twenty-one years of age. Students should not actually come to the University in the hope of entering as special students unless they have been assured *in writing* by the Registrar that there is a reasonable prospect of their being admitted.

THE COLLEGE OF ENGINEERING

Candidates for admission are expected to be graduates of a standard four-year high or preparatory school, or to have completed a corresponding amount of work under other conditions.

While the regular time for entrance to the College of Engineering is the opening of the first semester, the subjects are repeated in such a manner that students entering at the opening of the second semester may proceed with their work without loss of time.

Students may be admitted on the passing of satisfactory examinations or on the presentation of certificates from an accredited

high school. Applications from graduates of a non-accredited school will be considered as the merits of each case may warrant; but full standing in such instances shall be conditional upon the subsequent work of the student concerned.

Certificates of moral character may be required from all applicants for admission.

Fifteen units are required for admission. Entrance conditions will not be allowed beyond the equivalent of two units. For definition of "unit," see page 28.

The fifteen units should be distributed as follows:

Mathematics (Algebra, Plane and Solid Geometry).....	3
Languages other than English	2
English	3
History	2
Physics	1
Electives	4
	<hr/>
	15

Electives may be chosen from the following: Mathematics, 2; Greek, 3; Latin, 3; French, 3; German, 3; Spanish, 3; History, 2; English, 1; Science, 3; Civics, 1; Economics, $\frac{1}{2}$; Psychology, $\frac{1}{2}$. From the following group, subject to special accrediting by the University, not more than three units: Drawing, 2; Manual Training, 2; Agriculture (Introductory Science), 1; Commercial Geography, $\frac{1}{2}$; Stenography, 1; Bookkeeping, 1; Commercial Law, $\frac{1}{2}$.

Special Students.

Mature candidates, more than twenty-one years of age, who have had satisfactory preparation in algebra, geometry, physics, and English may be admitted as special students. Special students pursue the regular course and are required to remove their entrance deficiencies within two years. No one may enroll in the College of Engineering as a special student for more than two years except on the approval of the Dean and a vote of the Faculty.

THE GRADUATE SCHOOL

Graduates of any college or scientific school of equal rank with the University of Colorado are admitted upon presentation of certifi-

cates of graduation. Students from other institutions should present their credits to the Registrar for rating. See also, page 175.

THE SCHOOL OF MEDICINE,

Candidates for admission must fulfill the entrance requirements of the College of Liberal Arts, as given in detail on page 28, and present in addition two years of college work, estimated at sixty semester hours, not including credit in physical education. The following subjects are prescribed: At least one year of Latin, one year each of college chemistry, physics, biology, and French or German. It is recommended that candidates present in addition courses in organic chemistry and quantitative analysis. Entrance conditions will not be allowed beyond the equivalent of six semester hours.

Beginning with 1919 a college course in organic chemistry will be one of the courses required for admission.

Not more than thirty students will be admitted to any class. Preference will be given to those entering without conditions.

All candidates for admission should present a certificate of good character from two physicians in the state in which they last resided.

Students are earnestly advised to be present at the opening of the session. For the session of 1917-1918 no student will be allowed to enter later than Monday, September 24, 1917.

Special Students.

Mature students, not candidates for the degree of M.D., who can give satisfactory evidence of their qualifications to pursue certain advanced courses, may be admitted as special students. No student should come to the University with the expectation of entering as a special student unless he has been previously assured *in writing* by the Registrar that there is a reasonable prospect of his being admitted.

THE SCHOOL OF LAW

Candidates for admission must fulfill the entrance requirements of the College of Liberal Arts, as given in detail on page 28, including at least two units of Latin; and present in addition, two years of college work estimated at sixty semester hours, not including credit in physical education. A thorough course in English Political or Constitutional History must be included in the college work.

All candidates must present certificates of good moral character.

Special Students.

Persons twenty-three years of age, who cannot satisfy the admission requirements but are qualified to pursue special work, may be admitted to certain courses on approval of the proper committee of the faculty. Special students may be excluded at any time after entrance for unsatisfactory class work. Students should not actually come to the University in the hope of entering as special students unless they have been assured *in writing* by the Registrar that there is a reasonable prospect of their being admitted.

THE COLLEGE OF PHARMACY

Candidates for admission are expected to be graduates of a standard four-year high or preparatory school and *must present fifteen acceptable units*. Applications from candidates who have completed an equivalent amount of work under other conditions will be considered on the merits of each case; in general, such candidates will be expected to pass entrance examinations.

Certificates of moral character may be required from all applicants.

Entrance conditions will not be allowed beyond one unit and then only upon recommendation of the principal of the school from which the candidate graduated. This applies to all students including graduates of commercial and other courses wherein some of the subjects are not accepted for University matriculation.

Candidates with fifteen acceptable units, coming from a standard four-year high or preparatory school, who are not graduates, may be admitted with the consent of the principal.

For definition of "unit," see page 28.

The fifteen units should be distributed as follows:

Mathematics	2
Latin	1
English	3
History	2
Science (Chemistry and Physics)	2
Electives	5

15

Electives may be chosen from the following: Mathematics, 2; Greek, 2; Latin, 2; French, 2; German, 2; Spanish, 2; History, 2;

English, 1; Science, 2; Psychology, $\frac{1}{2}$. From the following group, subject to special accrediting by the University, not more than three units: Drawing, 1; Manual Arts, 2; Domestic Science, 1; Agriculture (Introductory Science), 1; Commercial Geography, $\frac{1}{2}$; Elementary Economics, $\frac{1}{2}$; Commercial Law, $\frac{1}{2}$; Bookkeeping, $\frac{1}{2}$.

Half units will not be accepted in Physics and Chemistry.

Special Students.

Persons twenty-one years of age, who cannot satisfy the admission requirements but are qualified to pursue special work, may be admitted to certain courses on approval of the proper committee of the faculty. Students should not actually come to the University in the hope of entering as special students unless they have been assured *in writing* by the Registrar that there is a reasonable prospect of their being admitted.

ACCREDITED SCHOOLS*

Akron	Colorado City	Golden
(Washington	Colorado Springs	Grand Junction
County)	Cripple Creek	Greeley
Alamosa	Debeque	Gunnison (Gunnison
Arvada	Delta	County)
Aspen	Denver:	Holly (Union)
Berthoud	East Side	Holyoke (Phillips
Boulder (State	Manual Training	County)
Preparatory)	North Side	Hotchkiss
Breckenridge	South Side	Idaho Springs
Brighton	West Side	Julesburg (Sedg-
Brush (Union)	The Wolcott School	wick County)
Canon City:	Durango	Lafayette
Canon City	Eaton	La Junta
South Canon	Florence	Lamar (Union)
Central City	Fort Collins	La Porte (Cache
(Union)	Fort Morgan	La Poudre)
Castle Rock	Fowler	Las Animas (Bent
(Douglas County)	Fruita (Union)	County)
Cheyenne Wells	Georgetown	Leadville
(Cheyenne	Glenwood Springs	Littleton
County)	(Garfield County)	Longmont

* Alphabetically by postoffices.

Louisville	Mount Lincoln	Silverton
Loveland	Paonia	Sterling (Logan
Mancos	Pueblo:	County)
Manitou	Centennial (Dis-	Telluride
Meeker (Rio Blanco	trict No. 1)	Trinidad
County)	Central (District	Victor
Monte Vista	No. 20)	Walsenburg (Huer-
Montrose (Montrose	Rifle (Union)	fano County)
County)	Rocky Ford	Wheatridge
Ouray (Ouray	Saguache (Saguache	Windsor
County)	County)	Wray (Yuma
Palisades:	Salida	County)
Palisade		

TUITION AND FEES*

INCIDENTAL FEE.

Annual fee for all students in all the colleges and schools (except the Denver Division of the School of Medicine, \$3.00).....\$ 6.00

COLLEGES OF LIBERAL ARTS, COMMERCE, AND EDUCATION, AND SCHOOL OF SOCIAL AND HOME SERVICE.

Matriculation (paid once)\$ 5.00

Tuition, resident, per year..... 15.00

Tuition, non-resident, per year..... 25.00

Laboratory fees, collected *each semester* from students who take the particular courses. [These fees include breakage deposits, etc., as well as charges for material.]

Physics, all laboratory courses, 25 per cent. returnable at end of course..... 3.00

Chemistry (Lecture hours are not counted):

General Inorganic, per credit hour, 25 per cent. returnable 3.00

Qualitative Analysis, per credit hour, 25 per cent. returnable 3.00

Organic Preparations, per credit hour, 25 per cent. returnable 3.00

All other courses, per credit hour, 25 per cent. returnable 2.00

* Special breakage charges may be collected whenever necessary in any laboratory department of the University.

Biology:

Botany, any course, 25 per cent. returnable....	\$ 2.00
Zoology, any course, 25 per cent. returnable....	3.00

Education:

Pedagogical library fee for each pedagogical course requiring duplicate books.....	1.00
Teacher's registration fee	1.00

Psychology:

Experimental Psychology	1.00
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Geology:

General Geology, per year, 60 per cent. return- able	5.00
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Mineralogy:

Determinative Mineralogy, 25 per cent. return- able	4.00
Advanced Mineralogy, 25 per cent. returnable..	2.00
Fire Assaying, 25 per cent. returnable.....	6.00

Geography:

Physiography, for field trips and maps, unused part returnable	3.50
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COLLEGE OF ENGINEERING.

Matriculation (paid once)	5.00
Tuition, resident, per year.....	15.00
Tuition, non-resident, per year.....	25.00
For laboratory fees in Engineering courses, see page 132.	

GRADUATE SCHOOL.

Matriculation (not required of graduates of this University or of instructors, paid once).....	10.00
Diploma fee	10.00
Tuition, per year, for courses in Ophthalmology.....	30.00

DEPARTMENT OF PREVENTIVE AND EXPERIMENTAL MEDICINE.

Matriculation	\$ 5.00
Tuition	15.00
Laboratory fees, per semester hour (not including expenses of field trips) .....	.50
Diploma fee	10.00

SCHOOL OF MEDICINE.

Tuition, resident, per year	75.00
Tuition, non-resident, per year	100.00*
Laboratory deposit, per semester, paid by all first and second year students to cover breakage and excessive and unreasonable use of material.	10.00

SCHOOL OF LAW.

Tuition, per year	50.00
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COLLEGE OF PHARMACY.

Matriculation (paid once)	5.00
Tuition, resident, per year	15.00
Tuition, non-resident, per year	25.00
Laboratory fees in Pharmacy 2b, 3b, and 6, per credit hour, 25 per cent. returnable.	5.00

SUMMER SESSION.

For Summer Session fees, see page 246.

EXTENSION FEES.

For Extension fees, see pages 262, 263.

NOTE—Matriculation fees will not be refunded. Students withdrawing from the University will be charged 10 per cent. of the annual tuition and incidental fees for each week of attendance in the Colleges of Liberal Arts, Engineering, and Pharmacy, and 5 per cent. in the Schools of Law and Medicine. No refunds will be made in the Graduate School after the second week of attendance. Students entering for one semester will be charged only 60 per cent. of the tuition fee and 50 per cent. of the incidental fee.

* Students registered in the School of Medicine before 1914-1915, pay \$75.00.

LIVING EXPENSES

The average price of board, room, light, and fuel may be placed at from \$5.50 to \$8.00 a week. Day board in boarding houses and city restaurants varies from \$4.00 to \$6.00 a week. The rent for furnished rooms varies from \$6.00 to \$15.00 a month. As a rule a room costing more than \$8.00 a month may be occupied by two students. Facilities for light housekeeping enable students to lessen expenses materially. Boarding clubs are organized and are open to new students.

The following table shows the estimated annual expenses of students of the University, excluding clothing and traveling expenses; the expense varies with the course pursued, and also depends, naturally, upon the tastes and habits of the individual.

Board	\$140.00 to \$216.00	
Room	40.00 to 108.00	
Books, instruments, and stationery.....	10.00 to 60.00	
Laundry	9.00 to 36.00	
Tuition and fees.....	21.00 to 116.00	
Incidentals	18.00 to 50.00	
	<hr/>	<hr/>
	\$238.00	\$586.00

The items for books and fees are high in the second table because they are estimated on the basis of a liberal allowance for students in the Schools of Medicine and Law.

The University has no dormitories for women and no boarding facilities. (See page 40.) Information concerning the Men's Dormitory may be found on page 39.

Information concerning the location of rooming and boarding places may be had at the office of the Registrar or from the secretaries of the University Christian Associations. Women students should consult also the Dean of Women. Inquiries concerning expenses should be directed to the Registrar.

EMPLOYMENT

While the University does not undertake to find employment for students, yet every assistance possible is given by University officers. The Registrar cooperates with the secretaries of the two Christian Associations, each of which conducts an employment bureau.

No general information can be given concerning employment because the personal capacity, efficiency, and energy of the student concerned and the time which he can devote to outside work are controlling factors.

Prospective students should not come to the University unless they have, at the time of entering, enough money to pay a reasonable part of the first semester's expenses. A few students are able to earn enough money to pay all of their expenses, but the attempt to do this frequently involves a sacrifice of health or scholarship.

Inquiries concerning employment should be directed to the Registrar.

SCHOLARSHIPS

HIGH-SCHOOL HONOR SCHOLARSHIPS

Scholarships, consisting of a remission of the annual tuition (\$15.00) for four years in the Colleges of Liberal Arts, Engineering, and Pharmacy, are granted to graduates of four-year high schools of Colorado, upon recommendation of the principal, according to the following plan:

To graduating classes of ten or less, one scholarship to either the first or second in rank; to classes of from ten to twenty-five, one scholarship to one of the first three in rank; to classes of twenty-five to fifty, two scholarships to any of the first six in rank; to classes of fifty to one hundred, three scholarships to any of the first nine in rank; to classes of over one hundred, four scholarships to any of the first twelve in rank.

A scholarship is forfeited whenever the student's yearly average falls below 80 per cent.

THE EDWARD G. STOIBER SCHOLARSHIP

The Edward G. Stoiber Scholarship Fund consists of the principal sum of \$2,000 held in trust, the income of which is given each year to some student in the School of Medicine, designated by the donor or by the officers of the School. This scholarship was established in The Denver and Gross College of Medicine by Mrs. Edward G. Stoiber in memory of the late Edward G. Stoiber. Under the terms of the merger agreement between The Denver and Gross College and the University of Colorado this fund has been transferred to the Regents, to be held in perpetuity for the purposes specified.

PRIZES

THE BENNETT PRIZE

The Bennett prize is awarded annually at Commencement for the best essay on *The Principles of Free Government*. Any student in the University may compete. The prize awarded is the income of the sum of \$400 presented to the Regents of the University by Hon. William J. Bryan, Trustee for Philo Sherman Bennett.

LOAN FUNDS

WOMEN'S LEAGUE LOAN FUND

This fund consists of the principal sum of about \$1,000. Loans are made to women students by the officers of the Women's League.

THE WILLIAM PORTER HERRICK MEMORIAL FUND

This fund, the gift of Mrs. Ursula D. Herrick in memory of her husband, the late William Porter Herrick, consists of the principal sum of \$5,000. The proceeds of this fund are awarded by the Regents of the University "in aid of such worthy and promising undergraduate students of the University, of either sex, as the President of said University may from time to time designate; provided, however, that no student who uses tobacco in any form, or who uses intoxicating liquors of any kind as a beverage shall participate in the benefits of this fund".

MEN'S DORMITORY

The rooms in the Men's Dormitory are in suites of three rooms each—a sitting room, and two bed rooms. Each suite is intended to accommodate four men. Room rent (\$12.00 a month for a suite) must be paid in advance for each semester. The rooms are unfurnished; the University provides light, heat, and care of rooms.

Occupants of rooms are held responsible for any damage; a deposit fee of \$5.00 is collected from each student. This is returned when room is vacated, less such portion thereof as may have been set aside for repairing damages.

UNIVERSITY HOSPITAL

The University Hospital provides hospital advantages for students of the University. A flat rate of \$10.00 a week is made for students in the general wards, and \$15.00 a week in the isolation hospital. For further information concerning the University Hospital, see page 220.

SUPERVISION OF WOMEN STUDENTS

DEAN OF WOMEN

The Dean of Women directs the interests of women students. She regulates social activities for both men and women, and is a member of the faculty committee which has direction over all student organizations and extra-curricular activities. The houses in which women room and board are under her supervision.

HOMES FOR WOMEN

Since there is no residence hall for women under the management of the University, suitable homes are provided in private families and in rooming houses. No woman student is allowed to live in any rooming house which is not on the University list accredited by the Dean of Women.

HEALTH OF WOMEN

The health of the women students is supervised by the Dean of Women, to whom all cases of illness are reported. Upon entrance to the University, all freshmen women are required to take a medical examination given by a University physician and a physical examination given by the Department of Physical Education for Women. At this time students are advised as to the hygiene of their daily lives. A series of lectures on personal hygiene, given by the Director of the Department of Physical Education for Women, is required of all freshmen women, and is open to all other women students. On alternate years a series of lectures on social hygiene is given by a woman physician. Lectures on first aid to the injured and on common ailments are given by members of the faculty of the School of Medicine. In the University Hospital provision is made for the care of students of the University. See page 39.

WOMEN'S BUILDING

The Women's Building furnishes headquarters for the women of the University. Here are the offices of the Dean of Women, the Women's League, and the Young Women's Christian Association. There is a hall for meetings and entertainments.

WOMEN'S LEAGUE

The Women's League is an association composed of the undergraduate women of the University, of alumnae, and of the wives of members of the faculties. Its purpose is two-fold: First, to pro-

mote the intellectual and social welfare of the women of the University; and secondly, to establish a loan fund for the benefit of women students.

STUDENT ASSEMBLY

The period from 11:00 to 12:00 on Tuesday is set apart for assembly of students. During this period no class or lecture work is conducted. A brief address is given by a member of the faculty or by some speaker invited for the occasion. Attendance is required.

UNIVERSITY PUBLICATIONS

1. Catalogue, published in March, containing general information about the University and its separate departments.
2. Summer Session Announcement, published in February.
3. The special announcements of the departments of Medicine, Law, Engineering, and Pharmacy, published in June.
4. The biennial report of the Regents of the University, recording the progress of the Institution during the previous biennial period, and showing the University budget of receipts and expenditures for the same period, published biennially in October.
5. The University of Colorado Studies, published at irregular intervals, and containing original contributions by members of the University faculties.
6. University Extension Bulletins on various subjects of investigation.
7. The Booklet of Views, containing half-tone cuts of the buildings and grounds.
8. The University News-Letter, containing current news of the University.
9. General Catalogue of the Officers, Members of the Faculties, and Graduates of the University from the opening of the Institution, published triennially.

These publications may be obtained by application to the Registrar of the University.

STUDENT AND ALUMNI PUBLICATIONS

The Silver and Gold, a semi-weekly paper, named after the University colors, is published by the students.

The Coloradoan, an annual, is published by each junior class.

The Colorado Engineers' Magazine is published quarterly by the students of the College of Engineering.

The University of Colorado Handbook is published annually by the Christian Associations.

The Civic Quarterly is published by the Civic Club.

The Colorado Alumnus, issued monthly, is the official publication of the Associated Alumni.

The Journal of Engineering, a quarterly, is published by the alumni and the students of the College of Engineering.

UNIVERSITY SCIENTIFIC SOCIETY

The University Scientific Society affords a common meeting ground for all those interested in scientific subjects. Regular meetings, open to the public, are held every Monday evening at eight o'clock. The papers read before these meetings are intended to set before the members some of the results of modern investigation in literature, art, history, and science.

ASSOCIATED STUDENTS

The student body is organized into an association known as "The Associated Students of the University of Colorado". Through this Association the students act collectively in all their University relations. There are seven executive boards—the Commission, the Men's Athletic Board, the Women's Athletic Board, the Debating Board, the Board of Publications, the Financial Board, and the General Board. The membership of these boards consists of faculty representatives appointed by the President of the University and student members elected by the students. The Commission controls general interests. The General Board has charge of all insignia, interprets the Constitution and proposes and ratifies amendments thereto, and employs and controls the general manager who has direct control of, and responsibility for, every student enterprise of general interest. The other boards cooperate with the general manager and determine the policy that shall be followed by him in the respective activities indicated by their names. By the payment of a \$6.00 fee any student, alumnus, or member of the faculties is entitled to admission to all local contests, games, or other events under the Association's auspices. Provision is made in the Constitution for a careful supervision of student funds, for the recall of any officers, and for the initiative and referendum.

ORATORICAL AND DEBATING INTERESTS

All public debates and oratorical contests are held under the management of the Debating Board of the Associated Students. This board consists of three faculty and three student members.

Annual debates are held with four other state universities. The teams for these debates are chosen by contest. The teams and alternates constitute a squad of twenty men, who are under the direct supervision of the instructor in debating.

The A. S. U. C. conducts each year a contest in original oratory in which cash prizes are offered.

ATHLETICS

The University aims, primarily, to stimulate interest in the greatest possible variety of athletics for both men and women, with suitably graded exercises for all students; and, secondarily, to develop highly specialized intercollegiate sports for men. Walking and mountain climbing are popular forms of recreation, and the climate is such as to permit out-of-door exercise during most of the year.

Athletics are placed upon a stable financial foundation under the organization of the Associated Students of the University. General supervision and direction of athletics for men is vested in the Athletic Board, and for women in the Women's Athletic Board. These Boards are each composed of three members of the faculty, appointed by the President of the University, and three student members, who are officials of the Associated Students. The Boards are responsible in all things to the University Senate. All students who participate in athletics are required to take a medical and physical examination.

ATHLETICS FOR MEN

The following branches of organized athletics are offered for men: Football, baseball, basketball, soccer football, cross-country running, track and field sports, with intercollegiate, interclass, and interfraternity competition.

The University has a chapter of the national athletic society, Sigma Delta Psi, membership in which is open to men who successfully complete fourteen athletic requirements.

ATHLETICS FOR WOMEN

The following branches of organized athletics are offered for women: Basketball, baseball, captain ball, volley ball, tennis, arch-

ery, and track. Annual tournaments are held in tennis and archery, and interclass games are played in basketball and baseball. A field day of women's athletics is held biennially.

Women's Athletic Association.

The Women's Athletic Association is composed of all women students of the University. The object of this Association is to promote and further the interests of intra-mural athletics for women.

MUSICAL ORGANIZATIONS

The University Glee and Mandolin Clubs are open to men of the University. Members are selected by competitive examination. A tour is made each year.

The University Orchestra is open to students and members of the faculty desiring to study standard orchestral works.

The University Band furnishes music for the various general University functions.

The Women's Instrumental Club is open to women of the University.

All musical organizations are under the direction or general supervision of the Professor of Music.

RELIGIOUS ORGANIZATIONS

Y. M. C. A. AND Y. W. C. A.

The Young Men's Christian Association and the Young Women's Christian Association have organizations in the University, which are open to members of the faculties and to students of all departments.

Religious services and meetings for the presentation of the moral and religious problems of the day are held by each Association. Classes for the study of the Bible and world-wide missions are conducted by each under competent leadership. Vesper services are held in the Chapel. In providing frequent social gatherings the Associations render important service.

Resident secretaries are employed by the Associations, and their services are at the disposal of prospective students and their friends. A copy of the Students' Handbook, which is issued by the Associations and is descriptive of life at the University, is sent upon request.

The Y. W. C. A. conducts a board and room register, a book exchange, and a self-help bureau for the women at the opening of each school year. The Y. W. C. A. offices are in the Women's Building and are open at all times to the women of the University.

The Y. M. C. A. has offices in the Men's Dormitory. Permanent employment bureau, information bureau, and headquarters for men are maintained here. The Student and Faculty Directory is published by the Y. M. C. A.

NEWMAN SOCIETY

The Newman Society is the local branch of the Catholic Students' Association of America. Membership is open to all Roman Catholic students. Its purposes are both religious and social.

HONOR SOCIETIES

Four honor societies, to which students of high scholastic standing are eligible, have chapters at the University of Colorado. Phi Beta Kappa elects to membership senior students in the College of Liberal Arts. Sigma Xi offers membership to graduate and undergraduate students who have shown special ability in scientific investigations. Tau Beta Pi is a technical society, selecting members from students in the College of Engineering. Kappa Delta Pi elects to membership students in the College of Education.

STUDENT LITERARY SOCIETIES AND CLUBS

Literary societies and debating clubs are organized and conducted each year by the students.

The Richard's Literary Society comprises in its limited membership both men and women, and aims to promote all dramatic, oratorical, and literary activities.

The Scribblers' Club aims to develop talent in original literary work. Meetings are held every two weeks, the programs consisting entirely of poems, essays, sketches, or stories written by the members. Membership is open to both men and women.

The Sketch Club aims to stimulate interest in art. The club meets twice a week and the members draw from the live model and from casts. Membership is limited to twenty. Candidates are expected to submit drawings.

The University of Colorado Debating Society was organized for the purpose "of cultivating a correct mode of speaking and qualify-

ing its members by practice to express their opinions in public in a correct manner". The Society spends most of its time in senate and parliamentary practice. Membership is open to men of the University who are interested in debating and oratory.

The E. V. U. Debating Club was organized for the purpose of increasing the opportunities for training in public speaking and parliamentary law at the University. Joint debates are carried on with the University of Colorado Debating Society. Membership is open to men of the University.

The Scoop Club limits its membership to students who have had experience in newspaper reporting.

The Civic Club, composed of students interested in political and governmental problems, is a member of the Intercollegiate Civic League. This club publishes the Civic Quarterly.

Le Cercle Français is an informal club which meets every two weeks for the purpose of obtaining practice in the French language, which is used exclusively. Plays are read and performed, various games are played, and the work of the classroom is supplemented in every possible way.

El Circulo Español, like Le Cercle Français, meets every other week. The object of the club is the same, to acquire practice in the spoken language and to stimulate interest in things Spanish. The meetings of the two clubs do not conflict.

The University of Colorado Menorah Society is a member of the Intercollegiate Menorah Association. Its object is the study and advancement of Jewish culture and ideals. Membership is open to any student of the University interested in these subjects.

The Deutscher Verein is composed of students and instructors in the Department of Germanic Languages. The aim of the organization is to promote interest in the living language, the music, and the customs of Germany. The Verein meets twice a month on Thursday evening. Only German is spoken at the meetings.

The Players' Club is organized for the purpose of promoting dramatic study and gives one or more public presentations during the year.

The Colorado University Chapter of The Intercollegiate Socialist Society aims to promote an intelligent interest in Socialism.

The Civil Engineers' Society, the Electrical Engineers' Society—a student branch of the American Institute of Electrical Engineers, and the University of Colorado branch of the American Society of

Mechanical Engineers have been organized by the students in the College of Engineering. These societies meet every two weeks. In each original papers on questions of technical interest are presented and discussed. These three societies joined as "The Associated Engineering Societies" publish the Journal of Engineering. The Colorado Engineers' Magazine is published by the students of the College of Engineering.

ASSOCIATED ALUMNI

The Associated Alumni of the University of Colorado is composed of all the graduates of the University of Colorado and of all other persons who have been in residence at the University of Colorado for at least one year, as members of the faculty, officers or students. The organization aims to promote the best interests of the University of Colorado and to unite the alumni for mutual advantage. In furtherance of these objects it maintains a permanent secretary in Boulder and publishes a monthly magazine known as "The Colorado Alumnus". The legislative and executive powers are vested in the Alumni Senate, which is made up of senators elected from the alumni at large, and representatives of the nineteen local alumni organizations in the principal towns and cities of Colorado and in many cities in other states. The Alumni Senate meets in Boulder in October on the Annual Home-Coming Day, and in June at Commencement.

HIGH-SCHOOL DAY

The observance of High-School Day has been made one of the regular features of the academic year. The purpose is to afford to the senior students of the high schools an opportunity of visiting the State University, inspecting its buildings and grounds and so far as possible learning the scope and spirit of its life and work.

COLLEGE OF LIBERAL ARTS

FACULTY

LIVINGSTON FARRAND, A.M., M.D., LL.D., President of the University.

FRED B. R. HELLEMS, Ph.D., LL.D., Dean; Professor of Latin.

J. RAYMOND BRACKETT, Ph.D., Dean of the Graduate School; Professor of Comparative and English Literature.

IRA M. DELONG, A.M., LL.D., Professor of Mathematics.

CHARLES C. AYER, Ph.D., Professor of Romance Languages.

GEORGE NORLIN, Ph.D., Professor of Greek.

*FRANCIS RAMALEY, Ph.D., Professor of Biology.

MELANCHTHON F. LIBBY, Ph.D., Professor of Philosophy.

JOHN BERNARD EKELEY, Ph.D., Sc.D., Professor of Chemistry.

RUSSELL D. GEORGE, A.M., Professor of Geology.

THEODORE D. A. COCKERELL, Sc.D., Professor of Zoology.

GEORGE M. CHADWICK, Professor of Music.

JAMES F. WILLARD, Ph.D., Professor of History.

OLIVER C. LESTER, Ph.D., Professor of Physics.

FRANK E. THOMPSON, A.B., Director of the College of Education; Professor of Education.

JUNIUS HENDERSON, A.B., Curator of Museum; Professor of Natural History.

†JOHN S. McLUCAS, A.M., Professor of English.

GRACE VAN SWERINGEN BAUR, Ph.D., Professor of Germanic Languages.

MILO G. DERHAM, Ph.D., Director of the Summer Session; Professor of Latin.

LAWRENCE W. COLE, Ph.D., Director of the School of Social and Home Service; Professor of Psychology.

LORAN D. OSBORN, Ph.D., Director of the Extension Division; Professor of Sociology.

FREDERICK A. BUSHEE, Ph.D., Director of the College of Commerce; Professor of Economics and Sociology.

RALPH D. CRAWFORD, Ph.D., Professor of Mineralogy and Petrology.

* On leave of absence, second semester, 1916-1917.

† On leave of absence, 1916-1917.

- HARRY A. CURTIS, B.S. (Ch.E.), Ph.D., Professor of Physical Chemistry.
- S. ANTOINETTE BIGELOW, A.M., Dean of Women; Assistant Professor of English Literature.
- C. HENRY SMITH, Ph.B., Librarian; Assistant Professor of Bibliography.
- WILLIAM A. COOK, Ph.D., High-School Visitor; Assistant Professor of Education.
- MAX M. ELLIS, Ph.D., Sc.D., Assistant Professor of Biology.
- CARL C. ECKHARDT, Ph.D., Assistant Professor of History.
- FRANK L. CLAPP, Ph.D., Secretary of the Bureau of Public School Service; Assistant Professor of Education.
- *PHILIP G. WORCESTER, A.M., Assistant Professor of Geology.
- WILLIAM F. BAUR, Ph.B., Assistant Professor of Germanic Languages.
- ARNOLD J. LIEN, Ph.D., Assistant Professor of Political Science.
- JAY W. WOODROW, Ph.D., Assistant Professor of Physics.
- JAMES N. ASHMORE, Director of Physical Education.
- HELEN MASTERS BUNTING, Director of Physical Education for Women.
- WILLIAM MACLEOD RAINE, A.B., Lecturer on Journalism.
- WILLIAM V. CASEY, Instructor in Education.
- CHARLES F. POE, A.M., B.S. (Phar.), Instructor in Chemistry.
- PAUL M. DEAN, Ph.D., Instructor in Chemistry.
- SAMUEL S. KINGSBURY, Ph.D., Instructor in Education.
- DONALD MCFAYDEN, B.D., Ph.D., Instructor in History.
- LORENA UNDERHILL, A.M., Instructor in Philosophy.
- RUTH M. SHELEDY, A.M., Instructor in German.
- JOHN H. V. FINNEY, B.S. (E.E.), Instructor in Physics.
- JESSIE HUTSINPILLAR, A.M., Instructor in English.
- MARIE SORENSON, A.M., Instructor in English.
- CLARIBEL KENDALL, A.M., Instructor in Mathematics.
- FRANCIS WOLLE, A.M., Instructor in English Literature.
- HENRY M. SAYRE, Instructor in Accounting.
- FLORENCE GALLIGAN JOSLYN, A.M., Instructor in Education.
- DOROTHY M. BURTON, A.B., Instructor in English Literature.
- ERSKINE R. MYER, A.B., Instructor in English.
- EDNA REYNOLDS, A.M., Instructor in Psychology.
- MAUD E. CRAIG, A.M., Instructor in Latin.

* On leave of absence, 1916-1917.

- ARTHUR T. EVANS, A.M., Instructor in Biology.
EDWIN B. PLACE, A.M., Instructor in Romance Languages.
IRENE P. MCKEEHAN, A.B., Instructor in English.
HUGH C. PRYOR, A.M., Instructor in Education.
JAMES H. COWLES, A.B., Instructor in Life Insurance.
R. CLARE COFFIN, A.B., Instructor in Geology.
GEORGE H. LIGHT, Ph.D., Instructor in Mathematics.
CLIFFORD BANTA, A.M., Instructor in Chemistry.
ROBERT M. BURNS, A.M., Instructor in Chemistry.
OSCAR A. RANDOLPH, Ph.D., Instructor in Physics.
GLADYS C. CURTIS, A.M., Instructor in Education.
ALICE DOWNING, A.M., Instructor in English.
OLIN INGRAHAM, A.M., Instructor in Economics.
*HARVEY W. HESS, A.B., LL.B., Instructor in English.
BEATRICE BOLAN, Instructor in Physical Education for Women.
†CHARLES GAUGER, A.B., Instructor in English.
†HAZEL A. CLAMPITT, Instructor in English.
MAY SNYDER, A.B., Assistant in Romance Languages.
LESLIE T. ROSS, A.B., Assistant in Romance Languages.
EDWIN D. HULL, M.S., Assistant in Biology.
DUANE L. SIMPKINS, A.B., Assistant in Chemistry.
EVA M. BAUM, A.B., Assistant in Chemistry.
ICIE G. MACY, A.B., B.S., Assistant in Chemistry.
NORMAN E. A. HINDS, A.B., Assistant in Geology.
FREDERICK W. SANBORN, A.B., Assistant in History.
GRACE M. FAIRCHILD, A.B., Assistant in Education.
ADA MORRIS, A.B., Assistant in Education.
FLORENCE FARRINGTON, A.M., Assistant in German.
FRIEDA MEENTS, A.B., Assistant in German.
HAROLD P. MUNCK, A.B., Assistant in Economics.
EDWIN PATTON, Assistant in Gymnasium.
ELMER HARRIS, Assistant in Gymnasium.

* Resigned, February 1, 1917.

† Appointed, February 1, 1917.

EQUIPMENT

LABORATORIES

THE PHYSICAL LABORATORY—The Department of Physics occupies the entire first floor, two hundred feet by sixty feet, of the Hale Science Building, with a large modern lecture room on the second floor. The laboratories are large and well supplied with gas, water, direct and alternating current, and the ordinary apparatus for students' use. There are rooms for advanced and research work equipped with special apparatus particularly in light and electricity. A well equipped shop and a department library also add greatly to the efficiency of the department.

CHEMICAL LABORATORY—The basement of the Chemistry Building contains a laboratory for organic and physiological chemistry, a laboratory for food analysis, a laboratory for sanitary water analysis, and the main stock and acid room. On the first floor are the laboratories for general inorganic chemistry and for qualitative analysis, a private laboratory, a laboratory for quantitative analysis, a balance room, a combustion room, and the stock distributing room. The second floor contains the main lecture room with an amphitheatre seating two hundred and fifty students, the lecture desk being supplied with water, gas, suction pumps, draught, and electric current; on this floor also are a room for the storage of lecture apparatus, a small lecture room seating eighty students, the chemical library, the professor's study and private laboratory, a laboratory for technical and gas analysis, and a laboratory for physical chemistry. Each desk in the various laboratories is equipped with gas, water, and sink, and, in the organic laboratory, with suction pumps. The ventilation is accomplished by the direct-indirect system, assisted by hoods and three horsepower electric motors and rotary fans. The laboratories for physical and advanced analytical chemistry are equipped with the proper apparatus for thorough experimental work in these subjects. The chemical library, to which students in the laboratories have access at any time, besides reference books on chemical subjects, contains bound files of the chief chemical journals of the world.

BIOLOGICAL LABORATORIES—The Biological Laboratories, located in the Hale Science Building, provide accommodations for work in general biology, zoology, and botany. The equipment is adequate for large undergraduate classes and for a limited number of advanced students. Students have ready access to the museum, herbarium, and department library. A summer mountain laboratory is maintained at Tolland, Colorado (altitude 8,889 feet), for work in plant and animal ecology.

GEOLOGICAL, MINERALOGICAL, AND GEOGRAPHICAL LABORATORIES—The west wing of the new fire-proof science building now houses the departments of Geology, Mineralogy, and Geography.

In order to meet the increasing demand for instruction in geography and physiography, the department has been equipped with the most approved geographical and meteorological apparatus, including most of the instruments used in the U. S. Weather Bureau.

The Department of Geology has good working collections of mineral and rock specimens.

The laboratories are equipped with apparatus for chemical and optical mineralogy and petrology. The equipment for geologic surveying and mapping is practically complete.

The library of the department consists of about 3,000 volumes. It receives all United States and State Geological Survey reports and several important journals and magazines, and contains the recent text and reference books on geology, mineralogy, petrology, geography, and meteorology.

THE PSYCHOLOGICAL LABORATORY—The Psychological Laboratory occupies four rooms on the third floor of the Liberal Arts Building. It is well equipped for instruction and training in physiological and experimental psychology. The equipment includes the apparatus necessary for general training courses in psychology and psychological methods, chronographs and recording appliances of various kinds, microscopic and lantern slides of brain sections, models, charts, a complete set of anthropometric instruments, etc. Instruments are provided for typical experiments in psychophysics, sensation, perception, association, reaction and movement. Constant additions are being made to the equipment.

MUSEUM AND CABINETS

THE ZOOLOGICAL COLLECTIONS include vertebrate skeletons and skulls, mounted mammals and study skins, mounted birds and study

skins, eggs and nests, fishes, reptiles, amphibians, crustaceans, insects, echinoderms, corals, sponges, and mollusks. Special importance attaches to the large collection of land, fresh-water, and marine shells, particularly rich in Rocky Mountain and Pacific Coast material; to fresh-water fishes from various parts of the world, including a large series from Colorado; to a good series of western reptiles and amphibians; and to a collection of Colorado butterflies.

THE BOTANICAL COLLECTION consists of a large series of mounted specimens, including seed plants, lichens, fungi and algæ, a display case of tropical seeds and fruits, a representative series of tropical woods and a collection of economic woods of the United States.

THE GUGGENHEIM BIOLOGICAL COLLECTION, purchased with funds placed at the disposal of the Board of Regents by Simon Guggenheim, consists of a fine series of the nests and eggs of birds taken by Mr. Dennis Gale at various altitudes in Colorado, with the accompanying field notes; also of a valuable collection of mounted birds and mammals, chiefly from Colorado and adjacent states.

THE MINERALOGICAL AND GEOLOGICAL COLLECTION consists of a large series of typical rocks, minerals, Colorado ores, microscopic sections of rocks, ores and minerals, wooden models of crystals, etc. They include both display and study specimens.

THE GUGGENHEIM MINERAL COLLECTION, the gift of Simon Guggenheim, consists of over 1,000 carefully selected type mineral specimens, which will be kept together for reference. It includes a large number of rare minerals not common in university cabinets, and is an extremely valuable addition to the equipment of the Department of Geology.

THE ETHNOLOGICAL COLLECTIONS consist chiefly of material illustrating the ancient culture of the southwestern United States, particularly the pottery, with many stone implements from Ohio and elsewhere, and ethnological material from the Philippines. These collections are increasing very rapidly. At present there are eleven cases of display material, besides many large objects not in cabinets.

THE PHOTOGRAPH AND LANTERN SLIDE CABINETS of the Biology and Geology departments and Museum contain several thousand negatives, prints and lantern slides illustrating various biological and geological phenomena.

THE PALEONTOLOGICAL COLLECTIONS contain great quantities of Colorado marine invertebrates, very large numbers of Tertiary insects and plants from the Lake Beds of Florissant, Colorado, Cre-

taceous plants from various parts of the State and from Kansas, Paleozoic plants from the coal measures of the eastern states, many thousands of Tertiary and Pleistocene marine invertebrates from the Atlantic and Pacific coasts, a representative collection of Paleozoic invertebrates from the eastern states and Mississippi Valley, many invertebrate fossils from Europe, Panama, and Mexico, and a few important fossil vertebrates, mostly from Colorado.

THE MUSEUM is temporarily located in the Hale Science Building, and contains the paleontological, biological, and ethnological cabinets and part of the mineralogical collections. A large portion of the material hereinbefore described is considered a part of the Museum, though some of the most valuable study collections belong to the Biology and Geology departments, and all of the material in the Museum is intended for the use of the various teaching departments, of the general public, and of specialists working upon lines represented in the collections. More than forty display cases contain suitable material on exhibition, the balance being in drawer cabinets, where it may be examined by students and others interested. Large quantities of duplicates are being collected for class use, research, and exchange purposes. The Museum is at present the depository of the paleontological collections of the Colorado Geological Survey. Several loan collections are also in the cabinets.

ART COLLECTIONS

THE PHILLIPS ART COLLECTION is named from the donors, Mr. and Mrs. Ivers Phillips. It is contained in rooms on the second floor of the east wing of the Macky Auditorium. The masters of painting are represented by Braun autotypes; the works in architecture and sculpture, by large photographic reproductions, casts and several hundred glass transparencies.

THE FARNSWORTH COLLECTION OF COINS was given to the University by Dr. Wilson A. Farnsworth, of Cæsarea, Cappadocia. It consists of some three hundred and fifty Greek, Roman, Byzantine, mediæval, and modern coins. The collection is on exhibition on the third floor of the Arts Building.

COURSES OF STUDY

INTRODUCTORY

In connection with the requirements for graduation the following general tendencies may be noted. An attempt has been made to map out an intelligent and reasonable group system which shall leave adequate freedom for individual needs and abilities, and, at the same time, prevent undesirable scattering of the student's energies. Provision is made for a combination of certain fundamental subjects and free electives with special work that shall be more scholarly and more finally valuable both for cultural attainments and scientific efficiency.

Moreover, the plan adapts itself readily to the needs of students who are looking forward to further work in professional and technical schools. Thus, within the College of Liberal Arts itself provision is made for a College of Commerce with various subdivisions and for a College of Education. By combining work in the College of Liberal Arts with work in the technical schools the student may attain the degree of A.B., and either the degree of B.S. in the College of Engineering, or the degree of LL.B. in the School of Law, in six years, or the degree of M.D. in the School of Medicine, in seven years. In summary, then, we have a group system so arranged that the first two years in the College of Liberal Arts provide alike a foundation for more advanced work along University lines and a sound preparation for courses in technical and professional schools. This latter phase of the plan is in accordance with the growing conviction that the college course must do its part in the genuine preparation of students for a vocation, as well as offer every opportunity for the acquiring of a liberal education in the most enlightened sense of the word.

For the purposes of the present group system the various subjects are arranged as follows:

- I. DIVISION OF LETTERS: 6 groups.
- II. DIVISION OF SCIENCE: 7 groups.
- III. DIVISION OF PHILOSOPHY: 3 groups.
- IV. DIVISION OF HISTORY AND ECONOMICS: 3 groups.

With the same general purpose in view, but carried out in logical detail, the College of Commerce and the College of Education have been established.

V. DIVISION OF COMMERCE, organized as the College of Commerce: 4 groups as follows: 1. Banking; 2. Manufacturing; 3. Journalism; 4. Trade, Transportation, Consular Service.

VI. DIVISION OF EDUCATION, organized as the College of Education; a professional group, and groups corresponding to those of the College of Liberal Arts.

Here may also be noted the arrangement for obtaining two degrees in six and seven years by crediting courses in the professional schools as a substitute for the groups and electives of the last two years—an extension of the group system. See pages 55, 107.

VII. ENGINEERING SUBJECTS: equivalent of two years.

VIII. LAW SUBJECTS: equivalent of one year.

IX. MEDICAL SUBJECTS: equivalent of one year.

REQUIREMENTS FOR ADMISSION

See pages 27, 28.

REQUIREMENTS FOR GRADUATION

To attain the degree of Bachelor of Arts students must complete one hundred and twenty-two hours according to the schedule printed below:

Attention is called to the following points:

1. Students must take fifty hours in some scheduled group, including at least five hours in each minor, the adjustment of the remaining hours to be advised by the major professor.

2. Students taking ten hours of either classics, mathematics, or science in the freshman year, shall choose five hours in one of the other groups named, in the sophomore year, unless they have included such five hours in their freshman year.

3. In beginning language courses no credit is given for less than a full year's work.

NOTE—The various branches taught in the College of Liberal Arts are offered in courses of study. A *five-hour course*, as here used, means *five* exercises a week throughout a semester; a course in which the class meets the instructor *once* a week is a *one-hour course*. Three *five-hour courses* successfully pursued for one semester would entitle the student to *fifteen* hours' credit; for one year,

to *thirty* hours' credit and so on. Students regularly take fifteen or sixteen hours per week.

On a day appointed before the beginning of each semester all students are required to record their election of studies for that semester. Credit will be granted for such studies only as have been approved by the Committee on Courses. No student will be permitted to change his course, or drop any study, except by vote of the Committee on Courses.

SCHEDULE

FRESHMAN YEAR

1. ENGLISH LANGUAGE	6 hours
2. CLASSICS, MATHEMATICS, OR SCIENCE.....	10 hours*
3. HISTORY OR ECONOMICS.....	6 hours
4. FREE ELECTIVES (8 or 10 hours).....	8 hours
5. REQUIRED PHYSICAL TRAINING.....	2 hours
<hr/>	
32 hours	

SOPHOMORE YEAR

6. CLASSICS, MATHEMATICS, OR SCIENCE.....	5 hours*
7. PSYCHOLOGY OR PHILOSOPHY.....	5 hours
8. GROUP ELECTIVES (Major or Minor).....	10 hours
9. FREE ELECTIVES	10 hours
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30 hours	

JUNIOR YEAR

10. GROUP ELECTIVES (Major or Minor).....	20-15 hours
11. FREE ELECTIVES	10-15 hours
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30 hours	

SENIOR YEAR

12. GROUP ELECTIVES (Major or Minor).....	20-15 hours
13. FREE ELECTIVES	10-15 hours
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30 hours	

* To be in different groups, *e. g.*, if ten hours of classics are elected in the freshman year, then five hours of mathematics or science must be elected in the sophomore year, unless already included in the freshman year.

GROUPS

I. DIVISION OF LETTERS

GROUP (a) <i>Major</i> , Latin;	<i>Minors</i> , { Greek, European History.
GROUP (b) <i>Major</i> , Greek;	<i>Minors</i> , { Latin, English Literature or Philosophy.
GROUP (c) <i>Major</i> , German;	<i>Minors</i> , { History, Latin or French.
GROUP (d) <i>Major</i> , { Romance Languages;	<i>Minors</i> , { Latin, German.
GROUP (e) <i>Major</i> , { Literature, Comparative and English;	<i>Minors</i> , { Two of the following: History, English Language, *Classics.
GROUP (f) <i>Major</i> , { English Language;	<i>Minors</i> , { English Literature, English History.

II. DIVISION OF SCIENCES

GROUP (g) <i>Major</i> , Mathematics;	<i>Minors</i> , { Physics, Astronomy.
GROUP (h) <i>Major</i> , Chemistry;	<i>Minors</i> , { Physics, Mathematics.
GROUP (i) <i>Major</i> , Physics;	<i>Minors</i> , { Mathematics, Chemistry.
GROUP (j) <i>Major</i> , Botany;	<i>Minors</i> , { Zoology, Chemistry.
GROUP (k) <i>Major</i> , Zoology;	<i>Minors</i> , { Botany, Chemistry.
GROUP (l) <i>Major</i> , Geology;	<i>Minors</i> , { Chemistry, Mineralogy.
GROUP (m) <i>Major</i> , Mineralogy;	<i>Minors</i> , { Geology, Chemistry.

* The courses presented may be either in English or in the ancient tongue.

III. DIVISION OF PHILOSOPHY

GROUP (n) <i>Major</i> , Philosophy;	<i>Minors</i> , { Psychology, Biology.
GROUP (o) <i>Major</i> , Psychology;	<i>Minors</i> , { Philosophy, Biology.
GROUP (p) <i>Major</i> , Education;	<i>Minors</i> , { Psychology, Biology.

IV. DIVISION OF HISTORY AND ECONOMICS

GROUP (q) <i>Major</i> , History;	<i>Minor</i> , Economics.
GROUP (r) <i>Major</i> , Economics;	<i>Minors</i> , { History, Sociology.
GROUP (s) <i>Major</i> , Sociology;	<i>Minors</i> , { Biology, Psychology.

ORDER OF DESCRIPTION OF COURSES

The various courses offered in the College of Liberal Arts are described in the following order:

Biology.	Library Science and Practice.
Chemistry.	Literature, Comparative and
Economics and Sociology.	English.
Education.	Mathematics.
English Language.	Music.
Geology, Mineralogy, and	Philosophy, Logic, and Ethics.
Geography.	Physical Education.
Germanic Languages and	Physics.
Literatures.	Psychology.
Greek.	Romance Languages—
Hebrew.	French, Spanish, Italian.
History.	Electives in the Professional
Latin.	Schools.

DESCRIPTION OF COURSES*

BIOLOGY

I. GENERAL BIOLOGY

- 1-2. PRINCIPLES OF BIOLOGY.† Throughout the year. Tu. Th. 10:00. 2 h. For those who wish to know something of current biological theories and discoveries, but do not expect to specialize in the department. Open to freshmen only if they have had some biological work in high-school.

Lectures on heredity, evolution, the elements of classification, distribution of organisms in time (paleontology) and space (biogeography), lives of eminent naturalists, etc.

3. SANITARY SCIENCE (MICROBIOLOGY).‡‡ First semester. Tu. Th. 2:00. 2 h.

Structure and life activities of bacteria, yeasts and protozoa, especially as related to disease-production, fermentation, and the rotation of the elements in nature. Problems of infection, immunity, control of disease.

4. HYGIENE AND PHYSIOLOGY.‡‡ Second semester. Tu. Th. 2:00. 2 h.

The human body viewed as a mechanism; the operation of that mechanism as a whole and the correlation of its several parts; individual health; prevention of degenerative diseases; prolongation of human life.

5. HISTORY OF BIOLOGY.† First semester. W. F. 11:00. 2 h.

The progress of zoology and botany from the earliest times to the present; history of biological investigation; development of established theories.

Prerequisite: six hours in the department.

6. PRINCIPLES OF HEREDITY.† Second semester. W. F. 11:00. 2 h.

Recent progress in the study of heredity in plants and animals; human heredity; eugenics.

Prerequisite: six hours in the department.

*Courses for graduates only are listed and described under Graduate School. See page 183.

† These courses count as required science if taken with some laboratory course in the department.

‡ Juniors and seniors receive only partial credit.

7. PLANKTONOLOGY.† Second semester. Th. 11:00. 1 h. With laboratory period to be arranged. Open on consultation. Biology and economic relations of the microscopic plants and animals found in ponds, streams and potable waters.
8. PUBLIC HEALTH PROBLEMS.
9. TEACHERS' COURSE IN BIOLOGY.

For courses for graduates only, see page 183.

II. BOTANY

1. GENERAL BOTANY. First semester. M. W. F. 1:00, lectures; Tu. 9:00-11:00, and Th. 9:00-12:00, or Tu. 1:00-3:00, and Th. 1:00-4:00, laboratory. 5 h.

Prerequisite: elementary botany (or biology) and elementary chemistry desirable but not required.

2. PLANT MORPHOLOGY. Second semester. Hours the same as for course 1.

A survey of the plant kingdom from alga to seed plant, closing with a study of the spring flora.

Prerequisite: Botany 1 or Botany 3.

3. ELEMENTS OF BOTANY.† First semester. M. W. F. 8:00-10:00. 3 h. Repeated the second semester. M. W. F. 10:00-12:00. A one-semester course for only those without adequate preparation in high-school science. Not open to those with high-school credit in botany. Followed in the second semester with Botany 2 or Botany 4.

Lectures and laboratory.

4. ECONOMIC BOTANY. Second semester. M. W. F. 8:00-10:00. 3 h.

Lectures and laboratory.

Prerequisite: some high-school or college botany.

5. FOREST BOTANY. First semester. M. W. F. 2:00-4:00. 3 h.
- Prerequisite: Botany 1 or Botany 3.

6. PLANT ANATOMY. Second semester. M. W. F. 2:00-4:00. 3 h.
- Prerequisite: Botany 1 or Botany 3.

7. MYCOLOGY.

8. ECOLOGY AND TAXONOMY. (Summer course.)

Given at the Mountain Laboratory, Tolland, Colorado.

For courses for graduates only, see page 183.

† Juniors and seniors receive only partial credit.

III. ZOOLOGY

- 1-2. GENERAL ZOOLOGY. Throughout the year. Tu. Th. 1:00, lectures; M. W. F. 1:00-3:00, laboratory. 5 h.
Prerequisite: elementary chemistry and biology are desirable but not required.
3. ELEMENTS OF INVERTEBRATE ZOOLOGY.† First semester. Tu. Th. 1:00, lectures; M. W. 10:00-12:00, laboratory. 3 h. A course for those who lack adequate preparation in high-school science. Not open to students with high-school credit in zoology or biology. Students preparing for medicine are advised to elect Zoology 1.
4. ELEMENTS OF VERTEBRATE ZOOLOGY. Second semester. Same hours as course 3.
Prerequisite: some high-school or college zoology.
- 5-6. CYTOLOGY. Both semesters. M. W. F. 1:00-3:00, with additional quiz hour to be arranged. 3 h.
Prerequisite: general zoology or general botany.
7. ECONOMIC ZOOLOGY. First semester. Th. 11:00. 1 h.
Animals and animal products useful to man; foods, textiles, drugs, etc.
8. FIELD ZOOLOGY. (Summer Course.)
Given at the Mountain laboratory, Tolland, Colorado.
- 9-10. COMPARATIVE ANATOMY OF VERTEBRATES.
- 11-12. ICHTHYOLOGY. For advanced students.
13. GENERAL ENTOMOLOGY. First semester. 3 h. One lecture and two laboratory periods a week.
The elements of entomology, including the classification and life histories of insects, with discussion of the biological principles illustrated by insects.
Prerequisite: a course in biology or zoology.
14. MEDICAL AND ECONOMIC ENTOMOLOGY. Second semester. 3 h.
One lecture and two laboratory periods a week.
Insects injurious or beneficial to man, with special reference to those which serve as carriers of disease.
Prerequisite: General Entomology.

For courses for graduates only, see page 184.

† Juniors and seniors receive only partial credit.

CHEMISTRY

1. GENERAL INORGANIC CHEMISTRY.* Throughout the year. 11:00. 3 h. This course is especially designed for those who have not studied chemistry. Those electing Course 1 must also elect Course 2.

A course of lectures dealing with the laws and theories of chemistry, together with a study of the elements and their most important compounds.

2. GENERAL INORGANIC CHEMISTRY.* Throughout the year. Tu. Th. 8:00 or 1:00. 2 h.

Laboratory and quiz sections.

A detailed course supplementing Course 1.

3. ELEMENTARY QUALITATIVE ANALYSIS. First semester. M. W. F. 1:00. 3 h.

Lectures, recitations and laboratory.

A course in the identification and separation of the more common bases and acids.

Prerequisite: courses 1 and 2.

- 3a. ELEMENTARY QUALITATIVE ANALYSIS. Second semester. Tu. Th. 8:00 or 1:00. 2 h. This course is intended primarily for students who have had high-school chemistry and who show more than average ability in the first semester of Courses 1 and 2. The second semester of Course 1 must be taken with this course.

An introductory course in qualitative analysis.

4. QUALITATIVE ANALYSIS OF THE RARE ELEMENTS. Second semester. Tu. Th. 1:00. 2 h.

The identification and separation of the rare elements.

This course may be taken as a continuation of Course 3.

- 4a. ADVANCED QUALITATIVE ANALYSIS. First semester. M. W. F. 1:00. 3 h.

Lectures, recitations and laboratory.

A course in the systematic separation of acids and bases including the rare elements.

This course is a continuation of Course 3a.

* All students entering the Department of Chemistry and not presenting university credits in general inorganic chemistry must take courses 1 and 2.

5. QUANTITATIVE ANALYSIS. First semester. M. Th. 11:00 and Tu. Th. 1:00. 4 h.

Lectures, recitations and laboratory.

Elementary gravimetric and volumetric analysis, chemical calculations, etc.

This course may be taken with Course 3 or Course 4a, but may not precede these courses.

6. QUANTITATIVE ANALYSIS. Second semester. M. W. F. 1:00. 3 h.

This course is a continuation of Course 5.

7. ANALYSIS OF IRON AND STEEL. First semester. 1:00. 2 h.

A practical course in the laboratory methods in use in the leading steel works.

Prerequisite: Courses 5 and 6.

8. SANITARY WATER ANALYSIS. Either semester. 8:00 or 1:00. 2 h.

A course in the chemical and bacteriological examination of water with regard to its use for drinking purposes.

Prerequisite: Course 5.

9. MINERAL WATER ANALYSIS. First semester. 8:00 or 1:00. 2 h.

A course in the analytical methods used in the determination of the mineral and gaseous constituents of natural waters.

Prerequisite: Courses 5 and 6.

10. ORE ANALYSIS. First semester. 1:00. 3 h.

A course in the analysis of ores, slags, etc., by the technical methods in use in mills and smelters.

Prerequisite: Courses 5 and 6.

11. GAS ANALYSIS. Second semester. 1:00. 2 h.

A course in the methods for determining the constituents of gas mixtures, especially as applied to illuminating gas and furnace gases.

Prerequisite: Courses 5 and 6.

12. ORGANIC CHEMISTRY. Either semester. 2:00. 4 h.

Lectures.

A study of the methods of preparation and the properties of the more important organic compounds. Special stress is laid upon the theories underlying the subject and the proofs of the constitution of most of the substances studied.

13. ORGANIC CHEMISTRY. Second semester. Time to be arranged.
2 h.

A laboratory course supplementing Course 12, designed to give practice in organic laboratory methods, and may be taken with Course 12.

14. LABORATORY PRACTICE IN ORGANIC PREPARATION. Second semester. M. W. F. 1:00. 3 h.

An advanced course in the preparation of typical aliphatic and aromatic compounds, and their analysis.

Prerequisite: Course 12.

15. QUALITATIVE ORGANIC ANALYSIS. Second semester. Time to be arranged. 2 h.

A course in the identification and separation of pure organic compounds.

16. FOOD ANALYSIS. Either semester. Any three periods. 8:00 or 1:00. 3 h.

Lectures and laboratory.

A detailed course giving practice in the official and standard methods for the analysis of foods and the detection of adulterants.

Prerequisite: Courses 5, 6, and 12.

17. PHYSICAL CHEMISTRY. Throughout the year. M. W. F. 11:00. 3 h.

A lecture course presenting the conceptions of the modern physico-chemical theories concerning the states of aggregation of matter, solutions, thermo-chemistry, equilibria, chemical kinetics, electro-chemistry, and actino-chemistry.

18. PHYSICAL CHEMISTRY. Throughout the year. M. F. 1:00. 2 h.

A laboratory course supplementing Course 17, consisting of the determinations of densities, molecular weights, thermo-chemical and optical constants, conductivity of solutions, electromotive force, transference numbers, viscosity, surface tension, electrochemical equivalents, transition points, etc.

19. ELECTROCHEMICAL ANALYSIS. Second semester. 1:00. 2 h.

Laboratory practice in the determination and separation of the common metals by electrolytic methods.

20. ADVANCED ANALYTICAL CHEMISTRY. First semester. Time to be arranged. 3 h. Open to seniors and graduates.
Lectures and laboratory.
21. ADVANCED ANALYTICAL CHEMISTRY. Second semester. Time to be arranged. 3 h.
Lectures and laboratory.
A continuation of Course 20.
22. INDUSTRIAL CHEMISTRY. Second semester. Time to be arranged. 3 h.
A lecture course on the principal chemical industries.
23. HISTORY OF CHEMISTRY. Second semester. Th. 11:00. 1 h.
Prerequisite: Courses 1, 2, 3, 4.
24. DRUG ASSAYING: PHARMACOPOEIAL TESTING. Second semester.
Any three periods. 8:00 or 1:00. 3 h.
A laboratory course giving practice in the official and standard methods for the identification, purity, and detection of adulterants and assaying official drugs.
Prerequisite: Courses 5, 12.
25. DRUG ASSAYING: ORGANIC ANALYSIS. First semester. Any three periods. 8:00 or 1:00. 3 h.
A laboratory course in the qualitative and quantitative analysis of pharmaceutical and commercial organic products, such as alcohol, ethers, esters, glycerine, soaps, formalin, organic acids, etc. Also the ultimate analysis of organic compounds.
Prerequisite: Courses 5, 6, 12.
26. DRUG ASSAYING: ALKALOIDAL ASSAYING. Second semester. Any two periods. 8:00 or 1:00. 2 h.
Lecture and laboratory course.
A course consisting of all the most important alkaloidal assays and the separation and detection of the alkaloids.
Prerequisite: Courses 5, 6, 12.
27. ADVANCED FOOD ANALYSIS. Second semester. Any three periods. 8:00 or 1:00. 3 h.
An advanced laboratory course in the official and standard methods of food analysis.
Prerequisite: Course 16.

28. **SANITARY CHEMISTRY.** Second semester. 3 h. Primarily for Pharmacy students, but may be elected by students in other departments by special permission.

Lectures and laboratory.

A course in the sanitary and bacteriological examination of water for drinking purposes, in the chief methods of food analysis, and in the detection of adulterations.

Prerequisite: Courses 5, 12.

ECONOMICS, SOCIOLOGY, AND POLITICAL SCIENCE

I. ECONOMICS

1. **INDUSTRIAL HISTORY OF ENGLAND.*** Two divisions. First semester. M. W. F. 8:00, 2:00. 3 h.

Recitations, readings, lectures.

Outlines the English industrial development with a more detailed consideration of the period since the Industrial Revolution.

This course is designed to be introductory to all courses in economics.

2. **ECONOMIC HISTORY OF THE UNITED STATES.*** Two divisions. Second semester. M. W. F. 8:00, 2:00. 3 h.

Recitations, readings, lectures.

Traces the growth of industry, agriculture, commerce, transportation, population, and labor from the simple, isolated, agricultural communities of the colonies, to the complex industrial and commercial society of today.

Logically follows Course 1.

3. **PRINCIPLES OF ECONOMICS.** Both semesters. M. W. F. 9:00. 3 h. Not open to freshmen.

The purpose of this course is to teach fundamental principles; to open the field of economics in the way most helpful to further and more detailed study of special problems, and to give those not intending to specialize in the subject an outline of the general principles of economics.

4. **PRINCIPLES AND PROBLEMS OF ECONOMICS.** Throughout the year. M. W. F. 10:00. 3 h. Not open to freshmen.

The purpose of this course is similar to Course 3, but it involves a more extended discussion of fundamental principles and a study of a larger number of specific problems.

* Juniors and seniors receive only partial credit.

5. PRINCIPLES OF ADVERTISING. First semester. Th. 11:00. 1 h.
See the Department of Psychology.
6. STATISTICS. Second semester. Tu. Th. 1:00. 2 h.
This course deals with elementary principles together with their applications, special emphasis being given to vital statistics.
7. ECONOMIC AND COMMERCIAL GEOGRAPHY. First semester. M. W. F. 3:00. 3 h.
A study of the influence of the geographic environment on the economic life and development of peoples.
8. HISTORY OF COMMERCE. Second semester. M. W. F. 3:00. 3 h.
A study of the development of the world's commerce with special attention to modern commercial organization.
9. LABOR PROBLEMS. First semester. M. W. 11:00. 2 h. Not open to freshmen.
Recitations, reports, lectures.
A study of labor organizations, employers' associations, their respective methods of bargaining, the relation of government to both.
10. SOCIAL LEGISLATION. Second semester. M. W. 11:00. 2 h.
Not open to freshmen.
Recitations, reports, lectures.
A study of legislation to remedy conditions of destitution and dependence.
11. MONEY AND BANKING. Throughout the year. Tu. Th. 8:00. 2 h.
Lectures, readings, discussion.
The history and theory of money, credit, and banking; special attention given to present-day problems of money and banking in the United States.
Prerequisite: Course 3.
12. TRANSPORTATION. Second semester. Tu. Th. 1:00. 2 h.
Recitations, reports, lectures.
A study of the development of rail and water transportation in the United States; special emphasis laid on the condition of railway transportation at the present time. Rates and rate-making, finance, traffic, operation, and legislation, are studied in turn.
Prerequisite: Course 3.

13. CORPORATIONS. First semester. Tu. Th. 8:00. 2 h.

Lectures, discussions, reports.

A study of the nature and organization of corporations. A comparison of the corporate form with other forms of business enterprise. The methods of forming corporations; types of securities; methods of marketing stocks and bonds; financing an enterprise; distribution of earnings; reorganization; problems of regulation and control.

Prerequisite: Course 3.

14. TAXATION. First semester. Tu. Th. 2:00. 2 h.

Lectures, discussions, reports.

A general study of the theory of public finance and a more detailed study of the revenue systems in the United States.

Prerequisite: Course 3.

15. LIFE INSURANCE. Second semester. Tu. Th. 3:00. 2 h.

16. MODERN ACCOUNTING. Second semester. M. W. F. 3:00. 3 h.

17. TRUSTS. Second semester. Tu. Th. 2:00. 2 h.

Lectures, discussions, reports.

A study of the economics of integration and combination. The trust movement—its causes, characteristics, and monopoly tendencies. Competition and regulation; the Federal Trade Commission; proposed solutions of the trust problem.

Prerequisite: Course 3.

18. BUSINESS ORGANIZATION AND SCIENTIFIC MANAGEMENT. Second semester. Tu. Th. 8:00. 2 h.

A study of the forms, methods, and principles of business organization and management; production, administration, and sales; records and accounts; systems of wage payments; principles of efficiency and scientific management.

Prerequisite: Course 3.

19. MATHEMATICAL THEORY OF INVESTMENTS. First semester. Tu. Th. 10:00. 2 h.

See Department of Mathematics.

For courses for graduates only, see page 197.

II. SOCIOLOGY

1. PRINCIPLES OF SOCIOLOGY. Throughout the year. Tu. Th. 10:00.
2 h. For juniors and seniors.

Lectures, readings, discussions.

In this course an attempt is made to formulate the fundamental laws of association, with special reference to their relation to social progress. Such topics as the influence of the physical environment, natural selection, warfare, division of labor, sex and sexual selection, heredity, imitation, social oppositions, art, science, and religion will be discussed with reference to their effects on social progress.

2. PROBLEMS IN SOCIOLOGY. Throughout the year. Tu. Th. 9:00.
2 h.

Lectures, assigned readings, discussions.

This course takes up the study of our various social institutions, placing special emphasis upon the family, its origin, function and problems. The course includes a study of immigration, race problems, poverty, crime, and kindred subjects.

Prerequisite: Economics 3.

3. SOCIALISM. First semester. Tu. Th. 9:00. 2 h.

Proposals for the reorganization of society on a socialistic basis will be studied historically and critically. Writings of the early French and English socialists will be reviewed, but the major part of the course will be devoted to the study of German scientific socialism.

Prerequisite: Economics 3.

4. ENGLISH NINETEENTH CENTURY REFORMERS. First semester.
Tu. Th. 1:00. 2 h.

The lives of English Reformers, with discussion on the principles and methods of reform. Wilberforce, Robert Owen, Cobden, Bright, J. S. Mill, Kingsley, Maurice, Florence Nightingale, Shaftsbury, Octavia Hill, Ruskin, Dickens, Huxley, William Morris, A. R. Wallace, etc.

5. ADVANCED THEORY OF SOCIOLOGY. Second semester. Tu. Th. 9:00. 2 h. For advanced students only.

A critical study of the theories of the leading sociologists beginning with Auguste Comte.

For courses for graduates only, see page 198.

III POLITICAL SCIENCE

1. NATIONAL ADMINISTRATION. First semester. M. W. F. 8:00. 3 h. Open to freshmen.

An elementary course in American Government, intended as a preparation for advanced work in political science, for teaching in secondary schools, and for good citizenship. Deals with the organization and work of the national government in all of its aspects.

2. STATE AND LOCAL GOVERNMENT. Second semester. M. W. F. 8:00. 3 h. Open to freshmen.

Deals with problems in state and local government, development of state institutions, new departures in legislation and administration, the initiative, the referendum, the recall, the budget, working of our courts, state police development, civil service and the short ballot movement; special emphasis on Colorado.

3. COMPARATIVE EUROPEAN GOVERNMENT. Second semester. M. W. F. 1:00. 3 h.

A study of the organization and workings of the governments of representative European states, especially Great Britain, France, Germany, and Switzerland; party systems and cabinet government in these countries.

Prerequisite: Course 1, Course 2, or equivalent.

4. MUNICIPAL GOVERNMENT. First semester. M. W. F. 1:00. 3 h.

A study of city charters, methods of city organization and administration, relation of the city to the state, home rule movement, commission government, the city manager type, short ballot and other reforms, comparisons with European cities.

Prerequisite: Course 2, or equivalent.

5. POLITICAL PARTIES AND PARTY PROBLEMS. First semester. Tu. Th. 1:00. 2 h.

This course deals with the functions, history, and organization of political parties, party machinery, and such current party problems as direct primaries, nomination by petition, non-partisan elections, preferential voting, corrupt practices acts, and methods of party finance.

Prerequisite: Course 1, Course 2, or equivalent.

6. **CONSULAR AND DIPLOMATIC SERVICE.** First semester. Tu. Th. 1:00. 2 h. Alternates with Course 5.

Outline of the growth of international relations, the mode of conducting foreign affairs, methods of making, interpreting and terminating treaties and compacts, organization, duties and immunities of consular and diplomatic agents, diplomatic relations with Latin America and the Far East.

Prerequisite: Course 1, or equivalent.

7. **INTERNATIONAL LAW.** Second semester. Tu. Th. 1:00. 2 h. Alternates with Course 8.

A study of the nature, sources and sanction of international law; status of nations; rules of peace, neutrality and war; doctrine and rules of neutrality; international rights of persons and property in time of peace and war; the Hague Conferences; newer problems, tendencies, and proposals.

Prerequisite: Courses 1 and 3, or equivalent.

8. **MUNICIPAL PROBLEMS.** Second semester. Tu. Th. 1:00. 2 h.

In this course will be considered some of the prominent problems of the modern city. Attention will be given to such questions as municipal ownership and regulation of public utilities, franchises, accounting and budget making, markets, city planning, municipal lodging and housing, recreation facilities, dust prevention, unemployment, the garden city movement, the social evil, public health, and other problems.

Prerequisite: Course 4 or equivalent.

EDUCATION

1. **GENERAL PSYCHOLOGY.** (PSYCHOLOGY 1.) Two sections. First semester. M. W. F. 1:00, 2:00, with an additional hour to be arranged for recitations and conferences. 3 h.
2. **EDUCATIONAL PSYCHOLOGY.** (PSYCHOLOGY 7 or 2.) Second semester. M. W. F. 1:00 or 2:00. 3 h.

3. **PRINCIPLES OF EDUCATION.** First semester. M. W. F. 8:00. 3 h.

An elementary discussion of the nature, scope, and aims of Education; an examination of those facts, theories, and hypotheses of biology, physiology, anthropology, psychology, sociology, and economics which would seem to have significance for educational theory; a synthesis of what is found to be pertinent into a working creed for the educator.

4. PRINCIPLES OF INSTRUCTION. Second semester. M. W. F. 8:00.
3 h.

An examination, classification, and evaluation of the means and materials of Education; human behavior and the possibilities of its modification or control; the learning process in its relation to the teaching process; educational agencies and educational institutions; the curriculum; the child and the curriculum; educational economy—school organization; educational results. This course is a natural continuation of Principles of Education.

Prerequisite: Courses 1, 2, and 3, or their equivalent.

- 5-6. PRINCIPLES AND PRACTICE OF TEACHING. Both semesters. Tu.
Th. 8:00 and other hours to be arranged. 2-6 h.

The application of principles to practice; the method and methods of the teacher in the elementary and secondary schools; comparative study of general and special methods; improvements in methods; classroom problems and their solution; the learning process and its direction; how we think and learn to think; how to study; how to teach others to study; essentials in the learning and teaching of the elementary and secondary school subjects.

Practice teaching is done in the University Training School (an ungraded school managed by the University), and in the Boulder High School. The student teaches under real school-room conditions except that classes are smaller, beginning teachers are helped more, and supervision emphasizes the learning rather than the teaching process.

Prerequisite: Courses 1, 2, 3, and 4, or their equivalents, senior standing, and the instructor's permission.

7. HISTORY AND PHILOSOPHY OF EDUCATION. First semester. M. W.
F. 10:00. 3 h. Open to all except freshmen.

This course deals with the history of culture and civilization, of social and intellectual as well as of definite school influences in China, India, Persia, and other Asiatic countries, as well as in Greece and Rome. It also deals with primitive Christian and Mediæval education.

8. HISTORY AND PHILOSOPHY OF MODERN EDUCATION. Second semester. M. W. F. 10:00. 3 h. Open to all except freshmen.

In this course it is necessary to confine the work more strictly to academic education. The course deals with all the great reform movements from the Revival of Learning to the present day.

9. SECONDARY EDUCATION. Throughout the year. Th. 11:00. 1 or 2 h.

Designed to give a broad view of the purposes and methods of secondary education; includes a brief historical survey; a study of existing systems, their organization and administration; the secondary school curriculum; the social life of high-school pupils, and a critical study of proposed plans for reorganization of the secondary school.

Prerequisite: Courses 1, 2, 3, 4, 7, 8, or their equivalent.

10. ANTHROPOLOGY. First semester. M. W. F. 9:00. 3 h.

An introductory study of the natural history of man; a survey of his physical and intellectual evolution; his agreements with and divergencies from allied animals; theories of time and place of origin; the main divisions of mankind and their general physical and mental characteristics; the general laws of man's existence and development, his relation to the rest of nature; beginnings and transmission of culture; chief divisions of primitive culture; prehistoric archæology.

11. ETHNOLOGY. Second semester. M. W. F. 9:00. 3 h.

A comparative study of typical tribes and peoples in their respective geographical habitats; the cultural conditions as differentiating peoples; the variety and range of human activities; the elementary thoughts of mankind—primary elements of culture and mental life; the origin, growth, and present condition of the social, religious, industrial, political, and scientific occupations and institutions of various peoples; the identity of "the human" in the variety of peoples; culture grades and their causes.

12. SOCIAL PSYCHOLOGY. (PSYCHOLOGY 11.) First semester. Tu. Th. 9:00. 2 h.

13. **EDUCATION AND SOCIETY.** Second semester. Tu. Th. 9:00. 2 h.

A study of the interrelations of education and society; society's responsibilities to, and need of, the school; the school's duty to, and expectations of, society; educational institutions and forces other than the school; society an educational device.

Prerequisite: Courses 1, 2, 3, and 4, or their equivalents.

14. **PRACTICUM IN EDUCATION.** Either or both semesters. Th. 2:00-4:00. 2 h.

The application of educational principles and theories to special problems of practice—"educational engineering"—such as the supervision and criticism of class work; courses of study; the functions of school boards, superintendents and principals; the improvement of teachers in service; teachers' meetings.

The course will be conducted on the conference plan; personal observation and investigation of neighboring schools; detailed written reports; collateral readings. It will also do to some extent the work of an educational journal club by devoting some time to current literature, events, contemporary educators, articles, books, educational news, and experiments.

Prerequisite: some teaching experience, senior or graduate standing, and the instructor's permission.

15. **SEMINAR IN EDUCATION.** Either or both semesters. Tu. 7:40 p. m. 2 h.

Subject-matter will vary from year to year; special examination and investigation of selected problems of importance in educational theory and practice; provision for independent investigations and for research in special problems.

Prerequisite: senior or graduate standing, and the instructor's permission.

ENGLISH LANGUAGE

1. **FRESHMAN ENGLISH.** Thirteen sections. Throughout the year. M. W. F. 8:00, 9:00, 10:00, 11:00, 3:00. 3 h. Required of all Arts freshmen.

Textbook, daily themes, oral exercises.

2. **ADVANCED COMPOSITION.** Three sections. Both semesters. Tu. Th. 10:00, 2:00, 3:00. 2 h.
Textbook, themes.
3. **SHORT STORY.** Second semester. Tu. 7:30. 2 h.
A course in writing short stories under criticism of the instructor and the class, to which only a limited number of apt students are admitted.
4. **ARGUMENTATION AND DEBATE.** Throughout the year. W. 2:00-4:00. 2 h. Not open to freshmen.
At the end of the first semester the University debating squad is selected. Those forming this squad will be given two additional credits. The course may be repeated, but no student shall receive more than a total of ten credits.
5. **PUBLIC SPEAKING.** Throughout the year. Tu. Th. 3:00, and afternoons to be arranged 2 h. Not open to freshmen.
No credit will be allowed unless the course is continued through both semesters.
A study of oratorical style, analysis and writing of orations, practical exercises.
6. **JOURNALISM.** Throughout the year. Tu. Th. 2:00. 2 h. Not open to freshmen.
Lectures, reports, practical work.
7. **ADVANCED JOURNALISM.** Tu. Th. 3:00. 2 h.
Lectures, reports, practical work.
Prerequisite: Journalism.
8. **HISTORY OF THE ENGLISH LANGUAGE.** First semester. M. W. F. 10:00. 3 h.
Lectures and recitations.
9. **ANGLO-SAXON.** First semester. M. W. F. 3:00. 3 h.
Bright's Anglo-Saxon Reader.
10. **ANGLO-SAXON.** Second semester. M. W. F. 3:00. 3 h.
Beowulf.
11. **MIDDLE ENGLISH.** First semester. Tu. Th. 11:00. 2 h.
Supplementary reading, lectures, reports.
Emerson's Middle English Reader.

12. CHAUCER. Second semester. Tu. Th. 11:00. 2 h. Not open to freshmen.
Lectures, readings, reports.
Skeat's Texts.
13. SHAKESPEARE. Both semesters. M. W. F. 11:00. 3 h. Not open to freshmen.
The careful reading of three plays each semester.
Rolfe's Texts.
14. PRE-SHAKESPEAREAN DRAMA. First semester. Tu. Th. 11:00. 2 h. Not open to freshmen.
Lectures, readings, reports.
Manly's Specimens of Pre-Shakespearean Drama.
15. INTERPRETATION OF ENGLISH POETRY. Second semester. Tu. Th. 11:00. 2 h. Not open to freshmen.
Lectures, readings, reports. Each year a different poet is studied.
16. STUDY OF PROSE STYLE. First semester. Tu. Th. 9:00. 2 h. Not open to freshmen.
Lectures, readings, reports.
17. ENGLISH FOR TEACHERS. M. W. F. 9:00. 3 h.
Lectures, reports, discussions.

For courses in Literature, Comparative and English, see page 91.

GEOLOGY, MINERALOGY, AND GEOGRAPHY

I. GEOLOGY

A. Courses for Undergraduates.

- 1-2. GENERAL GEOLOGY. Throughout the year. Daily. 1:00. First half of first semester: M. W. F. 1:00, lectures; Tu. Th. 1:00-4:00, field work. Second half of first semester: M. Tu. W. F. 1:00, lectures; Th. 1:00-3:00, laboratory work. Second semester: M. Tu. W. F. 1:00, lectures; Th. 1:00-3:00, laboratory work. 5 h. each semester.

The course will consist of a study of the principles of geology, with special reference to the geological history of North America. Field study will be an important feature of

the course. By special arrangement, students physically unable to take the field work, may register for 4 hours' credit in the first semester.

Students who have completed Geography 1 and who desire Geology 1-2, will receive four hours' credit for the first semester and full credit for the second semester.

Prerequisite: high-school chemistry or college chemistry.

- 3-4. **ENGINEERING GEOLOGY.** Throughout the year. M. W. F. 11:00, with two hours' additional laboratory work per week, arranged to suit the convenience of the class. 3 h. each semester. Open to upper classmen who are not majoring in geology.

The first semester the course will include a general discussion of the principles of geology. The second semester it will be a study of the geological materials important in engineering.

B. Courses Open to Undergraduates and Graduates.

- 5-6. **ECONOMIC GEOLOGY.** Throughout the year. First semester. M. W. F. 10:00; second semester, M. W. F. 11:00; with two hours' additional laboratory work a week, arranged to suit the convenience of the class. 3 h. each semester.

A study of the mineral resources of the United States, including the origin and character of ore bodies, the ores of iron, copper, lead, zinc, gold, silver, etc.; the extraction and uses of the metals; fuels, building materials, fertilizers, mineral waters, etc.

Prerequisite: Geology 1-2 or 3; Mineralogy 1-2 is strongly recommended.

- 7-8. **ADVANCED GEOLOGY.** Throughout the year. M. W. F. 2:00. 3 h. each semester. Given in alternate years. Not given in 1917-1918.

A special study of the problems of dynamic, structural, and historical geology.

Prerequisite: Geology 1-2; Mineralogy 1-2 is strongly recommended.

- 9-10. **GEOLOGY OF COLORADO.** Throughout the year. M. W. F. 2:00. 3 h. each semester. Given in alternate years. Given in 1917-1918.

A study of the dynamic, structural, historical, and economic geology of Colorado.

Prerequisite: Geology 1-2; or Geography 1, and Mineralogy 1-2.

11. GEOLOGIC SURVEYING. First semester. M. W. F. 1:00-4:00; two periods to be arranged. 5 h. Given in alternate years. Not given in 1917-1918.

This course is designed to train the student in all kinds of geologic field work. The methods used are those employed by the U. S. Geological Survey.

Prerequisite: superior work in two geology courses and determinative mineralogy; registration only after consultation with the professor in charge.

12. GEOLOGIC MATERIALS FOR INDUSTRIAL CHEMISTRY. Second semester. M. W. F. 10:00. 3 h.

A study of the occurrence, properties and uses of geological products of economic value in chemical industries.

Prerequisite: a year in general chemistry.

13. GEOLOGY. (A CULTURE COURSE). Throughout the year. M. W. 2:00. 2 h. Open to juniors, seniors, and graduates.

A lecture and reading course for general culture rather than scientific training.

This course does not count toward the science requirement, nor will credit be given to students who have credit for Geology 1-2.

- 14-15. PALEONTOLOGY. Throughout the year. 3 h. each semester.

The course is open to advanced students in geology and biology, on consultation with the professor.

It will include lectures on the principles of paleontology, and the facts concerning the development of types which characterize the several periods of geologic time; laboratory work in the identification, classification and description of fossil animals and plants, and the discussion of their stratigraphic and biologic position and significance.

NOTE—Students expecting to teach high-school geology or physical geography are advised to take Geology 1-2, 9-10, or Geography 1 and 3.

For courses for graduates only, see page 187.

II. MINERALOGY AND PETROLOGY

A. Courses for Undergraduates.

- 1-2. DETERMINATIVE MINERALOGY. Throughout the year. Th. 8:00, lectures and recitations; Tu. 8:00-11:00; Th. 9:00-11:00, laboratory. 3 h. each semester. Supplemented by Course 5.

The course includes elementary crystallography, descriptive mineralogy, the determination of minerals of economic importance by chemical and physical tests, and the study of collections of economic minerals.

Prerequisite: a course in general inorganic chemistry.

B. Courses Open to Graduates and Undergraduates.

- 3-4. ADVANCED MINERALOGY. Throughout the year. Th. 11:00, lectures and recitations; Tu. 8:00-11:00, laboratory. 2 h. each semester.

In this course minerals not previously studied are determined in the laboratory; a large part of the time is given to the rock-making minerals. Descriptive mineralogy is the chief subject of the lectures and recitations.

Prerequisite: Mineralogy 1-2.

5. FIRE ASSAYING. Second semester. F. 1:00, lectures and recitations; M. W. 1:00-4:00, laboratory. 3 h. For students who have taken or are taking determinative mineralogy and quantitative analysis.
6. ADVANCED CRYSTALLOGRAPHY. First semester. 2 h. May be continued the second semester as a one-hour or two-hour course.

This course includes measurement of crystal angles with the reflecting goniometer, determination of indices and axial ratios, stereographic projection, and crystal drawing.

7. OPTICAL MINERALOGY. First semester. 3 h. Open on consultation.

8. **PETROGRAPHY.** Second semester. 3 h. This course should be taken in the senior year by students who expect to do graduate work in geology.

Lectures, recitations, laboratory, work with petrographic microscope.

Prerequisite: Optical Mineralogy.

For courses for graduates only, see page 188.

III. GEOGRAPHY

1. **PHYSICAL GEOGRAPHY (PHYSIOGRAPHY).** First semester. M. Tu. W. F. 9:00, lectures and recitations; Th. 9:00, 12:00, field or laboratory work. 5 h.

This course includes a study of the atmosphere, the waters of the earth, the agencies of geologic and geographic changes, and the development and history of the physical features of the earth. The course is adapted to the needs of those who may wish to teach physical geography or physiography in the high schools.

It may be taken with Geography 2 and 4 or 3 and 4 to complete ten hours of science. Students who have completed Geology 1-2 and who desire this course will receive four hours' credit.

2. **GEOGRAPHY OF NORTH AMERICA.** Second semester. M. W. F. 9:00. 3 h.

A study of the natural resources of the continent as factors in its cultural, historical and industrial development.

3. **ADVANCED PHYSIOGRAPHY.** Second semester. Tu. 10:00; Th. 10:00-12:00; one hour to be arranged. 3 h.

The course is largely a continuation of Geography 1 and deals largely with the laboratory side of the work and the methods of teaching physical geography and physiography.

Prerequisite: Geology 1-2 or Geography 1.

4. **CLIMATOLOGY.** Second semester. Tu. 8:00-10:00; Th. 9:00. 2 h.

A practical course based on a study of the atmospheric phenomena and geographic conditions which affect the daily life of all races. It includes a discussion of the climatic zones and the relation of climate to crops, industry and health.

May be taken with Courses 1 and 2 or 1 and 3 to complete ten hours of science.

GERMANIC LANGUAGES*

- 1-2. ELEMENTARY COURSE. Throughout the year. 8:00, 9:00, 1:00.
5 h.

Grammar, pronunciation, reading; practice in writing and speaking German.

- 3-4. INTERMEDIATE COURSE. Throughout the year. M. W. F. 8:00,
10:00. 3 h.

Reading of selected masterpieces of German literature, such as Lessing's *Minna von Barnhelm*, Schiller's *Jungfrau von Orleans*, Ludwig's *Zwischen Himmel und Erde*, Freytag's *Die Journalisten*.

Prerequisite: Course 1-2, or two years of high-school German. It is strongly recommended that Course 3a-4a accompany Course 3-4.

- 3a-4a. COMPOSITION AND COLLOQUIAL PRACTICE. Throughout the year. Tu. Th. 8:00, 9:00, 10:00. 2 h.

German themes and letters; drill in syntax and idiom.

Prerequisite: Course 1-2, or two years' of high-school German. It is recommended that Course 3a-4a be taken parallel with Course 3-4.

5. LESSING AS A DRAMATIST. First semester. 3 h.

Study of *Nathan der Weise* and *Emilia Galotti*; readings from Lessing's other works; discussions and reports.

Prerequisite: Courses 3-4 and 3a-4a.

6. VON SCHEFFEL'S *EKKEHARD*. First semester. 3 h.

Reading and study of the entire novel.

Prerequisite: Course 3-4 and 3a-4a.

7. FREYTAG'S *BILDER AUS DER DEUTSCHEN VERGANGENHEIT*. Second semester. 3 h.

Reading and study of selections.

Prerequisite: Course 5 or 6.

8. SCHILLER'S *WALLENSTEIN* AND *DIE BRAUT VON MESSINA*. Second semester. 3 h.

Readings from the other plays of Schiller; discussions and reports.

Prerequisite: Course 5 or 6.

* So far as practicable, the classes in this department are conducted in the German language.

9. **GOETHE'S DRAMAS, EXCLUSIVE OF FAUST.** One semester. 3 h.
Readings, discussions, papers.
Prerequisite: Course 5 or 6.
10. **THE GERMAN DRAMA OF THE NINETEENTH CENTURY.** First semester. 3 h. Open to advanced students who read German with facility.
Reading of representative plays and discussion of the problems which they present.
11. **ADVANCED COMPOSITION.** One semester. 2 h. Open to advanced students on consultation; recommended to prospective teachers of German.
Themes on various aspects of German life, with discussions in the German language.
12. **GERMAN PRONUNCIATION.** One semester. 1 h.
Special drill on the German sounds; the reading of selected German poems.
Prerequisite: Courses 1-4.
13. **GOETHE'S FAUST: PARTS I AND II.** Second semester. 3 h.
Open to graduate students and seniors.
14. **STUDIES IN THE HISTORY OF THE GERMAN NOVEL.** One semester. 3 h. Open to seniors and juniors who read German with facility.
Reading and discussion of selected works.
15. **THE GERMAN NOVELLE.** One semester. 3 h. Open to seniors and juniors who read German with facility.
Reading and discussion of representative stories.
This course alternates with Course 13.
16. **TEACHERS' COURSE.** One semester. 2 h.
The phonetics and pronunciation of German; methods of teaching German to foreigners; examination of grammars and readers; systematic study of one of the texts usually read in high schools.
17. **SCIENTIFIC GERMAN.** Throughout the year. 2 h.
Prerequisite: Course 1-2, or two years of high-school German.

18. THE HISTORY OF GERMAN LITERATURE FROM THE EARLIEST TIMES TO THE TIME OF KLOPSTOCK. First semester. 3 h. Open to advanced students who read German with facility.
Lectures, collateral reading, reports.
19. THE HISTORY OF GERMAN LITERATURE FROM THE TIME OF KLOPSTOCK TO THE PRESENT. Second semester. 3 h.
Lectures, collateral reading, papers.
20. GERMANIC HERO-SAGAS. One semester. 2 h. Open to advanced students.
Lectures, recitations, collateral reading.
21. GERMANIC MYTHOLOGY. One semester. 2 h. Open to advanced students.
Lectures, recitations, collateral reading.
Primitive Germanic religion, customs and ideals of life, in their relation to German literature.

For courses for graduates only, see page 188.

GREEK

- 1-2. ELEMENTARY COURSE. Throughout the year. 10:00. 5 h.
Goodwin's Grammar. Xenophon's Anabasis, and Homer's Iliad.
3. HOMER'S ILIAD AND EASY PROSE SELECTIONS. First semester. 10:00. 5 h.
Includes review of grammar.
4. PLATO. Second semester. 10:00. 3 h.
The Apology and Crito and selections from the Phædo.
Prerequisite: equivalent of Courses 1-2 and 3.
5. HOMER'S ODYSSEY. Second semester. 10:00. 2 h.
Prerequisite: equivalent of Courses 1-2 and 3.
6. TRAGEDY. First semester. 11:00. 3 h.
Aeschylus' Prometheus and Sophocles' Antigone.
7. DEMOSTHENES. First semester. 11:00. 2 h.
Philippic and Olynthiac Orations.

8. PLATO. Second semester. 11:00. 3 h.
Interpretation of the Republic with lectures on Platonism.
9. COMEDY. Second semester. 11:00. 2 h.
Aristophanes' Clouds and Frogs.
10. GREEK HISTORIANS. First semester. 3:00. 3 h.
Selected books of Herodotus and Thucydides.
11. PASTORAL POETRY. First semester. 3:00. 2 h.
Theocritus, Bion, and Moschus.
12. LYRIC POETS. Second semester. 3:00. 3 h.
Early lyric poets with introduction to Pindar and Bacchylides.
13. PROSE COMPOSITION. Second semester. 3:00. 2 h.
14. GREEK POETRY IN ENGLISH. First semester. 9:00. 2 h. Knowledge of Greek not required.
Lectures and study of best translations.
15. GREEK DRAMA IN ENGLISH. Second semester. 9:00. 3 h.
Continuation of Course 14.
16. CLASSICAL MYTHOLOGY. First semester. 9:00. 3 h.
Lectures and textbook.
17. GREEK ART. Second semester. 2:00. 2 h.
Lectures and textbook.
18. GREEK CIVILIZATION. Second semester. 10:00. 3 h.
Lectures and readings.

For courses for graduates only, see page 189.

HEBREW

- 1-2. BEGINNERS' COURSE. Throughout the year. 10:00. 3 h.
Study of Genesis, Chapters 1-8.
- 3-4. SECOND-YEAR COURSE. Throughout the year. 1:00. 3 h.
Review of grammar and syntax; translations in Old Testament histories, Psalms, Wisdom Literature, Minor Prophets.

HISTORY

Primarily for Freshmen.

- 1-2. EUROPEAN HISTORY, 376-1789.* Throughout the year. M. W. F. 2:00. 3 h.

The first semester's work will end at the year 1300. Either semester's work may be taken separately. This course is a prerequisite for Courses 7, 8, 19, 20, and 22, and will admit to Courses 9 and 10.

- 3-4. ANCIENT HISTORY TO 800 A. D.* Throughout the year. M. W. F. 3 h.

The first semester's work will deal primarily with the history of Greece; the second primarily with the history of Rome, concluding with a brief description of characteristic mediæval institutions. Either semester's work may be taken separately. This course is a prerequisite for Courses 13 and 14, and will admit to Courses 9 and 10.

Not Open to Freshmen.

5. THE HISTORY AND LITERATURE OF THE HEBREWS TO 300 B. C. First semester. 2 h.
6. THE HISTORY AND LITERATURE OF THE JEWS FROM 300 B. C. TO 135 A. D. Second semester. 2 h.
7. THE FRENCH REVOLUTION AND THE NAPOLEONIC ERA. First semester. M. W. F. 9:00. 3 h.
Prerequisite: Course 1-2.
8. EUROPE SINCE 1815. Second semester. M. W. F. 9:00. 3 h.
Prerequisite: Course 1-2.
9. ENGLISH HISTORY. Throughout the year. 3 h.
The political, economic and social history of England. This course or Course 10 is required by the School of Law for entrance.
Prerequisite: either Course 1-2 or Course 3-4 except for students preparing to enter the School of Law.

* Juniors and seniors receive only partial credit.

10. ENGLISH CONSTITUTIONAL HISTORY. Throughout the year. Tu. Th. 2:00. 2 h.

This course or Course 9 is required by the School of Law for entrance.

Prerequisite: as in Course 9.

- 11-12. AMERICAN HISTORY, 1760-1880. Throughout the year. M.W. F. 11:00. 3 h.

The introductory course in American history. The first semester's work will end with the administration of Andrew Jackson. Either semester's work may be taken separately. This course is a prerequisite for Courses 22 and 23.

For Juniors and Seniors; for Graduates, upon Consultation.

13. ATHENIAN DEMOCRACY AND ITS ANCIENT CRITICS. One semester. 3 h.

A study of Greek political institutions and Greek political science.

Prerequisite: Course 3.

14. THE FALL OF THE ROMAN REPUBLIC. One semester. 3 h.

Prerequisite: Course 4.

15. THE ROMAN EMPIRE. One semester. 3 h.

Prerequisite: Course 4.

16. THE EARLY CHURCH, TO 451 A. D. One semester. 2 h.

Prerequisite: Course 6.

17. THE MEDIAEVAL CHURCH AND THE REFORMATION.* Throughout the year. Tu. Th. 10:00. 2 h. Open on consultation.

The course will deal primarily with the institutional side of the mediæval and reformed churches.

18. ENGLISH MEDIAEVAL INSTITUTIONS.* Throughout the year. M.W. F. 10:00. 3 h. Open on consultation.

A detailed study, based largely upon source material, of the manor, the guilds, feudalism, and the institutions of the church during the thirteenth and fourteenth centuries.

19. THE ITALIAN RENAISSANCE. One semester. 3 h.

Special emphasis will be placed upon the artistic and literary side of the Renaissance.

Prerequisite: Course 1-2.

* No credit given for one semester.

20. ENGLAND AND THE AMERICAN COLONIES. One semester. 3 h.
Prerequisite: Course 1-2.

21. ADVANCED MODERN EUROPEAN HISTORY. One semester. 2 h. Not offered in 1916-1917.

A detailed study will be made of some limited phase of modern history, *e. g.*, the Near Eastern question or the history of France or Germany since 1870. The subject will be changed each year and the course may be elected more than once.

Prerequisite: Course 8.

22. STUDIES IN GERMAN CIVILIZATION. One semester. 2 h.

A consideration of the development of German institutions from the beginnings to the present time, with especial reference to the achievements of the German nation politically, socially, intellectually and industrially.

Prerequisite: Course 1-2.

23. THE DEVELOPMENT OF THE WEST. Throughout the year. 2 h.

A study of the western expansion of the United States with especial reference to the trans-Mississippi region.

Prerequisite: Course 11-12.

24. AMERICAN HISTORY SINCE 1880. One semester. 2 h.

Prerequisite: Course 11-12.

25. HISTORICAL METHODS AND BIBLIOGRAPHY. First semester. 2 h.
Required of all juniors and seniors majoring in history.

26. METHODS OF TEACHING HISTORY. Second semester. 2 h. Required of all students who are preparing to teach history.

27. HISTORIOGRAPHY. First semester. 2 h. Required of all juniors and seniors majoring in history.

For courses for graduates only, see page 190.

LATIN

- 1-2. ELEMENTARY COURSE. Throughout the year. 10:00. 5 h.
First Year Book; grammar; Cæsar's Gallic War.

3. CICERO. First semester. 1:00. 5 h. For students who enter with two units of Latin, or have taken Course 1-2.
Selected orations; Latin writing, drill in forms and syntax.

4. VIRGIL. Second semester. 1:00. 5 h. For students who enter with three units of Latin or have taken Course 3.

The Aeneid, Books I-VI; drill in reading the Latin hexameter, case and verb constructions, and poetic usages.

5. CICERO. First semester. 8:00. 3 h.

Cicero, *De Senectute* and *De Amicitia*; the relation of these works to Cicero's other writings; Latin grammar, prose composition.

6. OVID. First semester. 8:00. 2 h.

Selections from Ovid; the influence of Ovid on modern literature; introduction to classical mythology.

7. LIVY. Second semester. 8:00. 3 h.

Selections from the earlier books; historical significance; Latin prose composition.

8. TERENCE AND PLAUTUS. First semester. 11:00. 2 h.

One play of each author; the place of Terence and Plautus in literature; introduction to Roman comedy.

9. HORACE. Second semester. 8:00. 2 h.

The Odes and Epodes; introduction to Latin lyrical poetry; Latin versification.

10. LATIN PROSE. First semester. 8:00. 2 h.

11. TACITUS. Second semester. 8:00. 2 h.

Tacitus, *Agricola* and *Germania*; the spread of Roman influence in the West; early civilization of Western Europe.

12. LATIN PROSE AND SIGHT TRANSLATION. Second semester. 9:00. 3 h.

13. LATIN LITERATURE. Throughout the year. 2:00. 3 h.

The outlines of the literature with its historical setting. The course is based on Latin selections.

14. ROMAN HISTORY. First semester. 10:00. 3 h.

Lectures and reports on sources.

Outlines of Roman History; the history of Rome from its foundation to 476 A. D., based on Latin extracts.

15. ROMAN SATIRE. First semester. 8:00. 3 h.

Horace, Juvenal, Persius; the origin and development of satire with a critical estimate of the historical value of the contents.

16. TACITUS AND PLINY. First semester. 8:00. 2 h.

Tacitus, Histories, book I; Pliny, Letters, book X; introduction to the prose of the Silver Latinity; Rome and the provinces.

17. ROMAN COMEDY. First semester. 1:00. 3 h.

Terence and Plautus, six plays; a comparative study of these authors, from the literary as well as the morphological side.

18. RHETORICAL TREATISES. 5 h.

Horace, *Ars Poetica*; Cicero, *De Oratore*, *Brutus*; Quintilian, book X; Tacitus, *Dialogus de Oratoribus*; principles of literary criticism; the debt of the above writers to Greek sources.

19. CATULLUS. First semester. 11:00. 2 h.

Latin lyrical poetry.

20. ROMAN PHILOSOPHY. 5 h.

Lucretius, *De Rerum Natura*; Cicero, *De Natura Deorum*, *De Finibus* and *Tusculanæ*; Seneca, selections; the place of Roman philosophy in the history of philosophy; the part played by these writers individually.

21. ROMAN HISTORY. 63 B. C. to 37 A. D. 3 h.

Sallust, *Catiline*; Cicero, *Letters* (Abbott's selections); Tacitus, *Annals*, books I-VI; Velleius Paterculus, book II.

22. TIBULLUS AND PROPERTIUS. 2 h.

Selected odes; special studies in Latin lyrical poetry.

23. MARTIAL AND PLINY. 2 h.

Selected epigrams and letters; private life under the early Roman Empire.

24. LATIN LITERATURE IN ENGLISH. 3 h.

The course is based on standard translations and is intended for students not taking Latin.

25. **LIVY.** 2 h. For advanced students.

Book I as a basis for the consideration of the problems of early Roman history.

26. **SUETONIUS.** 2 h.

Selected lives; introduction to the history of the Empire.

27. **TEACHERS' TRAINING COURSE.** Second semester. 3 h. For advanced students.

Lectures, reviews of textbooks; practical work in teaching under supervision.

28. **ADVANCED LATIN PROSE.** 2 h.

Stylistic analysis of Latin authors; the writing of Latin prose; problems in syntax.

29. **GREEK AND ROMAN ARCHÆOLOGY.** 2 h.

An elementary course in architecture, sculpture, and painting.

30. **MINOR LATIN POETS.**

Selections from various poets writing later than 69 A. D.

For courses for graduates only, see page 191.

LIBRARY SCIENCE AND PRACTICE

1. **LIBRARY SCIENCE AND PRACTICE.** Throughout the year. Th. 3:00, lectures; five hours each week, laboratory. 2 h.

Lectures by members of the library staff, and invited members of the profession. The course aims to give an adequate working knowledge of library usage. Visits to neighboring libraries, binderies, and publishing houses supplement lectures and laboratory instruction.

LITERATURE, COMPARATIVE AND ENGLISH

1. **ART FORM.** Throughout the year. 2 h. Open to all.

Lectures illustrated by lantern slides; recitations.

The sources, effects, and methods of composition in poetry illustrated by reference to architecture, sculpture and painting; the chief art works of every age.

2. **INTRODUCTION TO THE NOVEL.** Throughout the year. 2 h. Open to all.

3. THE BEST PROSE OF ALL AGES. Throughout the year. 2 h. Open to all.
4. PRESENT DAY POETS. 2 h. Open to all.
5. THE ANALYSIS OF PLAY CONSTRUCTION. Throughout the year. 2 h.
One lecture hour; one hour for conferences on writing plays.
6. AMERICAN AUTHORS. Throughout the year. Open to freshmen and sophomores.
7. THE HISTORY OF ENGLISH LITERATURE. Two or more divisions. Throughout the year. 5 h. Not open to freshmen.
Recitations and lectures.
From Anglo-Saxon times to the twentieth century; the chief types of prose and poetry; the principles of literary analysis and criticism; wide reading in English authors. This is the foundation course for those electing literature as a major. An effort is made to secure good habits of reading and writing.
History of English Literature; readings in English Literature.
8. THE GREAT DRAMA. Throughout the year. 5 h. For graduates and advanced undergraduates.
The international aspects of the English drama; a reading course from the mystery plays to the twentieth century.
9. AMERICAN PLAYS. 2 h.
10. SHAKESPEARE. Throughout the year. 5 h. Open to graduates and advanced undergraduates.
All the plays attributed to Shakespeare are read during the year; studies in the style, diction, and versification of the different periods; the establishment of the text; interpretation of great dramatic types—history, comedy, tragedy; wide reading and some original research.
11. WORLD DRAMA. Throughout the year. 5 h. For graduates and advanced undergraduates.
The development of the drama from the earliest times to the present; primitive drama; the literary drama of China, Japan, and India; the ancient classical drama; Calderon, Corneille, Racine, Molière, Victor Hugo; Lessing, Schiller, Goethe;

Ibsen; Tolstoy; Echegaray; Rostand, Maeterlinck; D'Annunzio; Hauptmann, Sudermann. This is a reading course, including one hundred and twenty-seven plays (in English).

12. **THE GREAT EPICS.** Throughout the year. 5 h. For graduates and advanced undergraduates.

The Iliad, the Odyssey, and the Æneid; the Divine Comedy; the great epics of all ages (in English).

13. **MASTERPIECES OF PROSE FICTION FROM THE EARLIEST TIMES.** Throughout the year. 5 h. Open to graduates and advanced undergraduates.

Typical masterpieces from the Greek romances to the twentieth century novel.

14. **THE SHORT STORY.**

Studies analytical, historical, and constructive.

15. **TENNYSON.** Throughout the year. Tu. Th. 2 h. For advanced students.

16. **BROWNING.** Second semester. 1 h. For advanced students.

The Globe edition of Tennyson; the Cambridge edition of Browning. The Seminary Library contains many volumes of valuable Tennysoniania presented by members of the class of 1896, and publications of the Browning Society.

17. **SHELLEY.** Second semester. 2 h.

18. **THE LATER NINETEENTH CENTURY POETS.** 2 h. Open to seniors and juniors.

Extensive readings in Clough, Arnold, Rossetti, Morris, Stevenson, Swinburne, Meredith, Patmore, and Wilde.

19. **FORMS OF CURRENT LITERATURE.** Throughout the year. Open to graduates and advanced undergraduates.

Personal and public letters, precis-writing, sketches, essays, critiques, theses, memoirs, speeches, lectures, orations, stories, verse, dramatization.

Studies in the chief uses of formal language required of college graduates by modern life. Much reading and writing.

Freshman composition does not count as a minor for English Literature major.

For courses in English Language, see page 75.

For courses for graduates only, see page 192.

MATHEMATICS

1. COLLEGE ALGEBRA. First semester. 9:00. 5 h. Only three hours allowed to those offering $1\frac{1}{2}$ units of high-school algebra for entrance.
Presupposes 1 unit of high-school algebra.
2. COLLEGE TRIGONOMETRY. Second semester. 9:00. 5 h. Only three hours allowed to those offering $\frac{1}{2}$ unit of high-school trigonometry for entrance.
3. COLLEGE ALGEBRA. First semester. 9:00. Second semester. 10:00. 3 h.
This course is generally taken with Course 4.
Presupposes $1\frac{1}{2}$ units of high-school algebra.
4. PLANE TRIGONOMETRY. First semester. 9:00. Second semester. 10:00. 2 h. No credit allowed if taken in review of high-school trigonometry.
5. COLLEGIATE MATHEMATICS. Throughout the year. 5 h.
Presupposes 3 entrance units; preferably, algebra $1\frac{1}{2}$ units and geometry $1\frac{1}{2}$ units.
This is a general course in trigonometry, analytic geometry, and the calculus. It is offered for students who, though not specializing in mathematics, find a real need for some acquaintance with its processes and formulas before they can read satisfactorily important texts and monographs in their major subjects, as in geology, economics, logic.
6. MODERN GEOMETRY. First semester. 8:00. 5 h.
Elementary. Open on consultation.
7. GEOMETRY AND MENSURATION. Second semester. 8:00. 3 h.
No credit allowed to those who have had Course 6.
Presupposes 1 unit of high-school geometry.
8. ELEMENTARY SOLID GEOMETRY. Second semester. 8:00. 3 h.
9. THEORY OF EQUATIONS. First semester. 10:00. 3 h.
Elementary. Sequence to Course 1 or 3.

10. ANALYTIC GEOMETRY. First semester. 8:00. Second semester. 9:00. 5 h.
Presupposes $1\frac{1}{2}$ units of high-school algebra, and $\frac{1}{2}$ unit of high-school trigonometry, or Course 2 or 4.
11. CALCULUS I. Either semester. 8:00. 5 h.
Prerequisite: Course 10.
12. CALCULUS II. First semester. 9:00. Second semester. 8:00. 5 h.
Prerequisite: Course 11.
13. DIFFERENTIAL EQUATIONS. Second semester. 9:00. 5 h.
14. MATHEMATICAL THEORY OF INVESTMENT. First semester. 10:00. 2 h.
15. MODERN ACCOUNTING. Second semester. 3:00. 3 h.
After reviewing the essentials in theory and practice of debits and credits, takes up the broader principles and applications of modern accounting. Introductory to life insurance and theory of investments.
16. FUNDAMENTAL CONCEPTS IN MATHEMATICS. Second semester. 11:00. 3 h.
17. ANALYTIC SOLID GEOMETRY. Second semester. 10:00. 5 h.
18. COMPLEX FUNCTIONS. Second semester. 10:00. 5 h.
19. TEACHING OF MATHEMATICS. First semester. 10:00. 3 h.
20. HISTORY OF MATHEMATICS. Second semester. 11:00. 3 h.
21. PROJECTIVE GEOMETRY. First semester. 10:00. 5 h.
22. TRANSCENDENTAL FUNCTIONS. Second semester. 5 h.
23. COURSES IN CONTINUATION OF COURSES 13, AND 18. First semester. Hours and credits as arranged.
24. COURSES IN CONTINUATION OF COURSES 9, 10, AND 12. Second semester. Hours and credits as arranged.

For courses for graduates only, see page 193.

MUSIC

1. HARMONY. Throughout the year. M. W. F. 11:00. 3 h.
Textbook: Bussler.
2. COURSE 1 CONTINUED. Throughout the year. Tu. Th. 10:00.
2 h.
Textbook: Bussler.
Prerequisite: Course 1.
3. COUNTERPOINT. Throughout the year. Tu. Th. 9:00. 2 h.
Prerequisite: Courses 1 and 2.
4. CANON AND FUGUE. Throughout the year. 2 h.
Prerequisite: Courses 1, 2, and 3.
5. COMPOSITION AND ORCHESTRATION. Throughout the year. 2 h.
Prerequisite: Courses 1, 2, and 3.
6. HISTORY OF MUSIC. Throughout the year. Tu. 3:00. 1 h.
Open to all.
Lectures.
7. AESTHETICS AND PHILOSOPHY OF MUSIC. Either semester. W.
7:30. 1 h. Open only to graduate students and seniors.
Seminar.

PHILOSOPHY

1. HISTORY OF PHILOSOPHY. Both semesters. M. W. F. 9:00. 3 h.
Open to all.
2. INTRODUCTION TO PHILOSOPHY. Both semesters. M. W. F.
11:00. 3 h. Open to all.
3. HISTORY AND PHILOSOPHY OF EDUCATION.* Both semesters. M.
W. F. 10:00. 3 h. Open to all.
4. METAPHYSICS.* Hours to be arranged. 2 h. For advanced stu-
dents.
5. HISTORY OF SCIENCE.* Hours to be arranged. 2 h.
6. LOGIC.* First semester. Tu. Th. 10:00. 2 h. Open to all.
7. AESTHETICS.* Both semesters. Tu. Th. 9:00. 2 h. Open to all.
8. ETHICS.* Second semester. Tu. Th. 10:00. 2 h. Open to all.

* None of these courses count as requirements in Philosophy until basic courses, 1 and 2, have been taken.

PHYSICAL EDUCATION

One year's work in Physical Education is required of freshmen in the College of Liberal Arts. Beyond this no academic credit is given for any of the courses in Physical Training except the Teachers' Course.

COURSES FOR MEN

1. ELEMENTARY GYMNASTICS. First semester. M. W. F. 1 h.
Open to all.

Calisthenics; light apparatus work; marching and drills; indoor and outdoor games—soccer, volley-ball, basketball, indoor baseball, and various gymnastic games.

2. INTERMEDIATE GYMNASTICS. Second semester. 1 h. A continuation of Course 1. Open to all.

Calisthenics; light and heavy apparatus work; indoor and outdoor games—soccer, volley-ball, basketball, baseball, track work, tennis, and cross-country running.

3. ADVANCED GYMNASTICS. Both semesters. Tu. Th. Open to students who are physically competent.

Heavy apparatus work, advanced calisthenics, gymnastic games, contests of skill and strength, boxing and wrestling.

4. TEACHERS' COURSE. Both semesters. 1 h.

A study of the major branches of sports: football, basketball, baseball, track and field athletics, each in season. Lectures on the game, offense, defense, the rules, the several positions, daily programs of practice, methods of coaching. The class instruction is paralleled by practical work.

5. PLAYGROUND COURSE. See page 99.

6. ATHLETICS. First semester. Elective for students who are physically competent.

Football, basketball, soccer, and tennis.

7. ATHLETICS. Second semester. Elective for students who are physically competent.

Baseball, soccer, tennis, track and field work.

COURSES FOR WOMEN

1. FRESHMAN COURSE.* Throughout the year. Three hours a week. 1 h. Required of freshmen.
 - a. Archery, tennis, basketball, captain-ball, baseball. Out of doors. September to November.
 - b. Elementary Swedish gymnastics—marching, floor work, apparatus work; folk dancing; æsthetic dancing; organized games. In gymnasium. November to Spring Recess.
 - c. Archery, tennis, baseball, track. Out of doors. Spring Recess to last of May.In a and c one sport only is required. Students may choose from the group offered.
2. CORRECTIVE COURSE. Throughout the year. Three hours a week. 1 h. Open to all.
 - a. Same as (a) in Course 1.
 - b. Corrective Swedish Gymnastics—marching, floor work, corrective apparatus work; folk dancing; æsthetic dancing. In gymnasium. November to Spring Recess.
 - c. Same as (c) in Course 1.
3. RESTRICTED COURSE. Throughout the year. Three hours a week. Open to all.
 - a. Archery. Out of doors. September to November.
 - b. Restricted Swedish gymnastics—marching and floor work; folk and æsthetic dancing. In the gymnasium. November to Spring Recess.
 - c. Archery. Out of doors. Spring Recess to last of May.This course is for students whose condition of health is such that they may not take either of the above courses.
4. ADVANCED COURSE. Throughout the year. No credit. Open to upper classmen. Elective.
 - a. Athletics. (1) Archery, tennis, baseball. Out of doors. September to November. Two hours a week. (2) Basketball. In the gymnasium. November to Spring Recess. Two hours a week. (3) Archery, tennis, baseball. Out of doors. Spring Recess to last of May.

* The restricted and corrective courses may be substituted for this course in cases where conditions of health or posture make such substitutions advisable. This is possible only by permission of the director of the department.

b. *Gymnastics.* Advanced Swedish Gymnastics—marching, floor work, apparatus work. In the gymnasium. November to Spring Recess. Two hours a week.

c. *Dancing.* Advanced æsthetic and interpretative dancing. In the gymnasium. November to Spring Recess. Two hours a week.

Prerequisite: Course 1 or its equivalent.

5. *PLAYGROUND COURSE.* Throughout the year. Three hours a week with additional hours in first aid. 2 h. Elective. Open to both men and women. No credit will be given unless the course is continued through both semesters.

a. *Theory.* (1) Lectures, assigned readings, papers, book reviews. Nature and function of play; economic and sociologic needs for playgrounds; development of playground movement in America; organization of playground movements; practical conduct of playgrounds—equipment, instruction, supervision, activities, aims. (2) *First Aid.* Ten lectures of one and a half hours each. Required of all playground students. Lectures, assigned readings, practice in bandaging. Course given by a physician.

b. *Practical work.* (1) Practice teaching: practice in teaching dances, organized games, team games. (2) Practice in folk dances for all ages; relay races; organized games; team games—volley-ball, captain-ball, basketball (women's), indoor baseball.

PHYSICS

1. *GENERAL PHYSICS—MECHANICS AND HEAT.** First semester. Tu. Th. 10:00. Lectures, two hours; recitations, two hours. 4 h.

Prerequisite: an elementary knowledge of plane trigonometry.

2. *GENERAL PHYSICS—ELECTRICITY, MAGNETISM, SOUND AND LIGHT.** Second semester. Tu. Th. 10:00. Lectures, two hours;

* Courses 1 and 2 are an elementary but thorough presentation of the fundamental facts, principles, theories, and applications of modern physics, covering the properties and mechanics of solids, liquids, and gases, and the phenomena of heat, electricity, magnetism, sound, and light. These courses, or their equivalent, are prerequisite for all those that follow. The lectures are fully illustrated by apparatus and by experiments. The recitations are based upon both the lectures and a textbook which the student is expected to study systematically in parallel with the lectures.

recitations, two hours. 4 h.

Prerequisite: an elementary knowledge of plane trigonometry.

3. **EXPERIMENTAL PHYSICS.**† First semester. One three-hour period per week. 1 h.

Quantitative laboratory work in the subjects of mechanics and heat.

Prerequisite: an elementary knowledge of plane trigonometry.

4. **EXPERIMENTAL PHYSICS.**† Second semester. One three-hour period per week. 1 h.

Quantitative laboratory work in the subjects of electricity, magnetism, sound, and light.

Prerequisite: an elementary knowledge of plane trigonometry.

5. **THEORETICAL MECHANICS—STATICS.** Second semester. M. F. 11:00. 2 h. Taken regularly in the sophomore year.

A study of the equilibrium of particles and rigid bodies; centers of mass; moments of inertia.

Prerequisite: Course 1 and calculus; open, however, to those who are beginning integral calculus the second semester.

6. **THEORETICAL MECHANICS—DYNAMICS.** First semester. M. W. F. 8:00. 3 h. Taken regularly in the junior year.

A study of the motion of particles and rigid bodies. Emphasis is laid upon the fundamental physical principles of the subject and the attempt is made to give the student a certain facility in translating physical conceptions into mathematical symbols and mathematical formulæ into physical ideas.

Prerequisite: Course 1 and calculus.

7. **TEACHERS' TRAINING COURSE IN PHYSICS.** Second semester. 2 h.

A course designed primarily for those who expect to teach physics in secondary schools. Such topics as the proper ar-

† It is strongly recommended that courses 3 and 4 be taken in parallel with courses 1 and 2. When not so taken, courses 1 and 2, or their equivalent, must precede. All the above courses are taken regularly in the sophomore year, but they may be taken by freshmen with the requisite preparation. They should be taken as soon as possible by those whose major subject is physics, chemistry, or mathematics.

rangement of a secondary-school course, laboratory equipment and instruction, aims, ways and means of teaching the various subjects, things which do and which do not need emphasis, will be considered in lectures, discussions, and reports. Considerable outside reading will be required.

Prerequisite: Courses 1, 2, 3, and 4, or their equivalent.

8. THEORY OF ELECTRICITY AND MAGNETISM. First semester. M. W. Th. F. 11:00. 4 h. Taken regularly in the junior year.

The elements of the mathematical theory of electricity and magnetism with applications to the general theory of instruments of fundamental importance in electrical measurements.

Prerequisite: Courses 2, 5 and 6, or their equivalent, and differential and integral calculus; open, however, to those who are taking Course 6.

9. ELECTRICAL MEASUREMENTS. First semester. Two three-hour periods per week. 2 h. Taken regularly in the junior year.

A laboratory course intended to accompany and to supplement Course 8.

Prerequisite: Courses 2 and 4, or their equivalent.

10. THEORY OF ELECTRICITY—ALTERNATING CURRENTS. Second semester. 2 or 3 h.

A study of alternating current theory, problems and applications. Courses 8 and 10 are designed to furnish a thorough knowledge of fundamental principles and conceptions and a preparation for the further study of advanced electrodynamics.

Prerequisite: Course 8, differential and integral calculus.

11. PROPERTIES OF MATTER. Second semester. Hours and credits to be arranged.

Lectures on molecular physics and properties of matter with advanced laboratory work on selected problems of considerable experimental difficulty.

Prerequisite: Courses 1 to 6, inclusive, calculus.

12. HEAT AND THERMODYNAMICS. First semester. Lectures and recitations. 2 h.

A study of the more important phenomena of heat and elementary thermodynamics.

Prerequisite: Courses 1, 2, and calculus.

13. **LIGHT.** First semester. Lectures, 1 hour; laboratory, 4 hours. 3 h. Omitted in 1917-1918.

A course designed to give the student a critical knowledge of the fundamental phenomena of light. The laboratory work consists of accurate measurements in dispersion, interference, diffraction and polarization.

Prerequisite: Courses 1 to 4 inclusive, and calculus.

14. **ADVANCED ELECTRICAL MEASUREMENTS.** Second semester. Hours and credit to be arranged.

Laboratory work on selected electrical problems of considerable difficulty, requiring a rather advanced knowledge of the theory of electricity and magnetism.

Prerequisite: Courses 8, 9, and calculus.

20. **DESCRIPTIVE ASTRONOMY.** First semester. Tu. Th. 9:00. 2 h.

A course conducted by means of lectures, recitations and a text. It is designed as a complete course for those wishing a general knowledge of the principal facts, theories and methods of astronomy and provides a necessary introduction to Course 21. The lectures are illustrated by slides, models, and apparatus. The telescope will be used occasionally.

Prerequisite: an elementary knowledge of trigonometry.

21. **INTRODUCTION TO MATHEMATICAL ASTRONOMY.** Second semester. 3 h.

A course dealing with selected portions of spherical, practical, and theoretical astronomy involving mathematical treatment of elementary and intermediate difficulty.

Prerequisite: Courses 6, 20, and calculus; differential equations advised.

For courses for graduates only, see page 195.

PSYCHOLOGY

1. **GENERAL PSYCHOLOGY.** (Education 1.) Two sections. First semester. M. W. F. 1:00, 2:00, with an additional hour to be arranged for recitations and conferences. 3 h.

This course gives, by means of lectures, recitations, experiments, and demonstrations, a general survey of the essential facts and fundamental laws of mind. It is prerequisite to all

other courses in psychology and to the courses in education. The student who expects to make psychology or education a major should take this course in his sophomore year.

2. COMPARATIVE PSYCHOLOGY. (Education 2.) Second semester.
M. W. F. 2:00. 3 h. Continuation of Course 1.

A systematic study of mental development in the race and in the individual. The course will sketch the development of the nervous impulse, of animal sense organs with reference to their habits, of instincts and intelligence in animals, and in cases of arrested development. With these simpler facts as a basis the development of mental functions in the individual in childhood and adolescence will be discussed with reference to educational theory.

3. ADVANCED PSYCHOLOGY. First semester. Tu. Th. 9:00. 2 h.
Lectures, discussions, readings, and a thesis.

An intensive study of selected problems; introspective exercises and an analytic study of mental phenomena.

Prerequisite: Course 1 or its equivalent.

4. PATHOLOGICAL PSYCHOLOGY. Second semester. Tu. Th. 9:00.
2 h. Open on consultation.

Lectures, readings, and a thesis.

Disorders of sensation, memory, imagination, association, the emotions and volition. As Course 2 traces the development of mental functions this course will discuss the order of their impairment. Mental hygiene and a study of such psychoses as throw light on the general and genetic problems of psychology.

Prerequisite: two courses in psychology.

- 5-6. EXPERIMENTAL PSYCHOLOGY. Throughout the year. Tu. Th.
1:00-3:00, laboratory; 3:00, lecture. 3 h.

This course serves as an introduction to experimental psychology and aims to familiarize the student with modern psychological methods, apparatus, and results.

First semester. Typical experiments and demonstrations in the psychology of the senses, feeling and movement, with a study of individual differences.

Second semester. Experiments in perception and the higher mental processes; time, intensity, and extensity of men-

tal phenomena; mental and physical tests and measurements; statistical methods.

7. EDUCATIONAL PSYCHOLOGY. (Education 2.) Second semester.

M. W. F. 1:00. 3 h. Continuation of Course 1.

Lectures, readings, and a thesis.

The principles of psychology, and the results of experimental pedagogy which are modifying the course of study and methods of instruction in the older schools of this country will be presented in this course. It is recommended that those students who are primarily interested in education take this course as a continuation of Course 1.

Prerequisite: Course 1, or its equivalent.

8. THE PSYCHOLOGY OF GRAMMAR-SCHOOL AND HIGH-SCHOOL SUBJECTS. Second semester. Tu. Th. 10:00. 2 h. Not offered in 1916-1917.

Lectures, recitations and a thesis.

This course describes the mental functions involved in the mastery of each school subject of grammar-school and high-school grade. The topics will be discussed from the point of view of classroom practice, then from that of experimental inquiry, and finally from the point of view of the causes of failure in different subjects. The purpose of the course is to apply the principles of psychology directly to teaching.

9. THE PSYCHOLOGY OF ADVERTISING. First semester. Th. 11:00. 1 h. Not offered in 1916-1917.

Laboratory exercises and recitations.

The strength of advertisements of various classes will be tested by a rather accurate statistical method. The same method will be applied to advertisements written by students. Size, position, medium, headlines, legibility and various other problems of advertising will be studied.

10. MENTAL TESTS. Throughout the year. Th. 11:00. 1 h.

Lectures, exercises, and readings.

The more important and practical tests of the senses and intelligence will be presented and discussed. Such physical tests will be selected for discussion as are of especial importance to teachers.

11. **SOCIAL PSYCHOLOGY.** (Education 12.) First semester. Tu. Th. 9:00. 2 h.

A study of personality as socially modified or determined; the effects of—imitation; habit; habit and attention; social and personal crises; language; instincts, emotions, sentimentalisms, sentiments, and ideas; occupations and institutions.

This course does not count for required Psychology.

Prerequisite: Courses 1 and 2, or their equivalents.

12. **CHILD STUDY.** First semester. 2 h.

A systematic study of the physical and mental development of children; a discussion of the facts, scientifically determined, of the psychology of childhood and adolescence, with their educational applications.

Prerequisite: Course 7, or its equivalent.

13. **ANATOMY OF THE CENTRAL NERVOUS SYSTEM.**

See announcement of School of Medicine.

For courses for graduates only, see page 196.

ROMANCE LANGUAGES

FRENCH

- 1-2. **BEGINNERS' COURSE.** Throughout the year. 8:00, 9:00, 1:00. 5 h.

Grammar, pronunciation, translation, dictation.

- 3-4. **SECOND-YEAR READING COURSE.** Throughout the year. M. W. F. 9:00, 2:00. 3 h.

Modern French stories and plays to be selected from standard authors of the nineteenth century; selected lyrics.

Prerequisite: Course 1-2, or two years of high-school French; students are advised to take Course 3a-4a with Course 3-4.

- 3a-4a. **PROSE COMPOSITION AND CONVERSATION.** Throughout the year. Tu. Th. 9:00. 2 h.

Completion of French grammar; phonetics.

Prerequisite: Course 1-2, or two years of high-school French; students are recommended to take Course 3-4 with Course 3a-4a.

5. SEVENTEENTH CENTURY FRENCH. First semester. M. W. F. 11:00. 3 h.
Corneille, Racine, Molière, Mme. de la Fayette; advanced prose composition.
Prerequisite: Courses 3-4 and 3a-4a.
6. THE ROMANTIC SCHOOL. Second semester. M. W. F. 11:00. 3 h.
Victor Hugo, Lamartine, De Musset; modern poetic drama of Rostand; advanced prose composition.
7. HISTORY OF FRENCH LITERATURE. First semester. M. W. 11:00. 2 h.
Lectures and reports on assigned readings. The Eighteenth Century. Abry-Andic, *Histoire illustrée de la Littérature Française*; Vreeland and Michaud's *Anthology of French Prose and Poetry*.
8. HISTORY OF FRENCH LITERATURE. Second semester. M. W. 11:00. 2 h.
Lectures and reports on assigned readings. Abry-Andic, *Histoire illustrée de la Littérature Française*.
9. FRENCH LYRIC POETRY. Second semester. 2 h.
10. FRENCH SHORT STORIES. First semester. 2 h.
With study of the novel.
11. FRENCH DRAMA. Second semester. 2 h.
From the beginnings to the present day.
12. FRENCH LITERARY CRITICISM. Second semester. 2 h.
French literature from the point of view of Sainte Beuve, Scherer, Taine, Faguet, Anatole France, etc.
13. SYNTAX OF THE FRENCH VERB. Second semester. 2 h.
Based on Armstrong's *Syntax of the French Verb*, with assigned readings.

For courses for graduates only, see page 197.

SPANISH

- 1-2. BEGINNERS' COURSE. Throughout the year. 8:00, 9:00, 1:00. 5 h.
Grammar, punctuation, translation, dictation.

- 3-4. SECOND-YEAR READING COURSE. Throughout the year. M. W. F.
10:00. 3 h.

Modern Spanish stories and plays to be selected from standard authors of the nineteenth century.

Prerequisite: Course 1-2 or two years of high-school Spanish; students are recommended to take Course 3a-4a with Course 3-4.

- 3a-4a. PROSE COMPOSITION AND CONVERSATION. Throughout the year.
Tu. Th. 10:00. 2 h.

Prerequisite: Course 1-2 or two years of high-school Spanish; students are recommended to take Course 3-4 with Course 3a-4a.

5. NINETEENTH CENTURY DRAMA AND NOVEL. First semester.
M. W. F. 9:00. 3 h.

One hour of prose composition.

Prerequisite: Courses 3-4 and 3a-4a.

6. SEVENTEENTH CENTURY DRAMA AND NOVEL. Second semester.
M. W. F. 9:00. 3 h.

Calderon, Lope de Vega, Alarcon, Cervantes, one hour of prose composition.

For courses for graduates only, see page 197.

ITALIAN

- 1-2. BEGINNERS' COURSE. Throughout the year. 1:00. 3 h.
Grammar, pronunciation, translation, dictation.

3. DANTE'S DIVINE COMEDY. First semester. 2 h.

4. ALFIERI AND GOLDONI. Second semester. 2 h.

For courses for graduates only, see page 197.

NOTE—Students are recommended to take up the Romance Languages in the following order: French, Spanish, Italian. They should not elect courses simultaneously in Spanish and Italian without consulting the instructor.

ELECTIVES IN THE PROFESSIONAL SCHOOLS

In accordance with the general plan outlined on page 55, the courses tabulated below may be elected in the professional schools.

COLLEGE OF ENGINEERING

The following subjects in the College of Engineering may be taken by all students in the College of Liberal Arts:

Mechanical Drawing, 3; Freehand Drawing, 2; Descriptive Geometry, 3; Surveying, 8; Least Squares, 2; Applied Mechanics, 4; Graphic Statics, 3; Kinematics, 2; Hydraulics, 3; Thermodynamics, 2; Dynamo Electric Machinery, 4.

SCHOOL OF LAW

Students in the College of Liberal Arts in their fourth year who declare their intention of proceeding to the degree LL.B. in the University of Colorado, may be allowed credit for twenty-two hours on the completion of all work required in the freshman year of the School of Law.

SCHOOL OF MEDICINE

The two degrees of M.D. and A.B. may be conferred on the completion of seven years' work, one year's credit (30 hours) being allowed on the completion of the full freshman work in the School of Medicine.

Under this arrangement a student would naturally choose either zoology or chemistry as a group major.

COLLEGE OF COMMERCE

FACULTY

FREDERICK A. BUSHEE, Ph.D.,
Director of the College of Commerce.

The Faculty of the College of Commerce consists of Professors and Instructors whose work contributes to the courses.

GENERAL STATEMENT

FUNCTION

The College of Commerce was opened September, 1906. Its purpose is to provide professional training for the practical demands of business. It aims to prepare men for careers in Domestic and Foreign Commerce and Banking, Insurance, Transportation, Trade and Industry, Journalism, and in branches of the Public Service, like the Consular, in which a knowledge of business is essential. Heretofore universities and colleges have done all they could for the young man who wishes to become a minister, teacher, lawyer, physician, journalist or engineer. The College of Commerce is developed in response to the demands of (1) enlarged commercial operations, (2) the public service, (3) the desire of parents to give their sons a college education and at the same time prepare them for their life work in business.

It is well known that the knowledge of the details of any particular line of business can be acquired only by actual experience. But the broad training given students in this department of the University will enable them to acquire the routine technicalities of any concern more easily than those whose minds have not been made flexible and acute by systematic training. They will thus the more readily assume positions of leadership and responsibility in the business world.

The curriculum of the College of Commerce is prepared with the following aims in view: (1) To furnish a certain amount of culture work which is the mark of college training. (2) To familiarize the student with the nature and workings of the industrial organism. This is attempted by studies in commercial geography, economics and history of commerce, transportation, banking, business organization and management. (3) To impart a certain amount of knowledge of the physical and chemical sciences and their applications to the industrial arts. (4) To give an acquaintance with the articles of commerce and the various industrial processes through which they pass. (5) To make the student acquainted with the principles of commercial law. (6) To supply an equipment in modern languages. (7) To afford an opportunity to acquire some knowledge of a particular line of trade.

ORGANIZATION

The College of Commerce offers four courses: 1. Banking. 2. Manufactures. 3. Journalism. 4. Trade, Transportation and Consular Service.

ADMISSION AND FEES

The requirements for admission and the fees are the same as for the College of Liberal Arts. See pages 27, 28, 34.

SUBJECTS IN THE COLLEGE OF COMMERCE*

(REQUIRED FOR GRADUATION.)

FRESHMAN YEAR

	I.	II.	III.	IV.
	Banking	Mfrs.	Trade, Consular. Jour. Service, etc.	
ENGLISH LANGUAGE..	6	6	6	6
SCIENCE	10	Chem. } 10	10	10
HISTORY	6	6	6	6
FRENCH, GERMAN OR SPANISH	10	10	French } 10	10
REQUIRED PHYSICAL TRAINING	2	2	2	2
	—	—	—	—
	34	34	34	34

SOPHOMORE YEAR

MATH., SCIENCE.....	Math. } 10	Math. } 10	Biol. } 4	Ec. Bot. } 3
PSYCHOLOGY .....	..	..	6	6
HISTORY OR ECON....	10	10	10	10
FREE ELECTIVES.....	10	10	10	11
	—	—	—	—
	30	30	30	30

* In addition to regular courses in the departments open to election, provision will be made for lectures on current problems, and practical topics by prominent business men.

JUNIOR AND SENIOR YEARS

LAW	10	10	10	10
ECONOMICS	20	20	20	20
ENGLISH LANGUAGE AND LITERATURE OR CLASSICS .....	..	..	20	..
PHYSICS .....	..	10	..	..
FREE ELECTIVES.....	28	18	8	28
	—	—	—	—
	58	58	58	58

The following courses are especially recommended for students in the College of Commerce:

Principles of Advertising.
 Business Organization and Scientific Management.
 History of Commerce.
 Commercial Geography.
 Economic History of the United States.
 Taxation.
 Transportation,
 Corporations.
 Money and Banking.
 Journalism.
 Diplomatic and Consular Service.
 Modern Accounting.
 Life Insurance.
 Mathematical Theory of Investments.

For a further description of these courses, see departments of Mathematics and Economics and Sociology in the College of Liberal Arts.

COLLEGE OF EDUCATION

FACULTY

FRANK E. THOMPSON, A.B.,
Director of the College of Education.

The Faculty of the College of Education consists of Professors and Instructors in the College of Liberal Arts whose work contributes to the various courses.

GENERAL STATEMENT

ORGANIZATION

A College of Education, to be a division of the College of Liberal Arts, was authorized by the Board of Regents in January, 1908. The report of the committee on a course of study was adopted in April, and the College was regularly opened for work in September of that year.

FUNCTION

It is intended that this College shall provide systematic and comprehensive training for those who may choose education as a *profession*. That there may be such a profession becomes every year more apparent, and it becomes apparent, too, that preparation for service in it must be as complete as for service in other professions. No human endeavor is more important than education; no class should be more carefully prepared than teachers. The need of the present time, expressed in most quarters in a demand, is that many of the teachers in the elementary schools, all of the teachers in the high schools, and all persons engaged in supervision of instruction shall have as a minimum of scholarship the A.B. degree, or its equivalent, and shall have made intensive study of the history, theory and practice of education. There is need in each state for at least one professional school of collegiate rank which shall afford opportunity for training, both in theory and practice, for teaching, supervisory and administrative positions in elementary, secondary and normal schools.

The College of Education is designed to satisfy this need; it is a device of organization and administration to secure for the teacher studies along pertinent lines and in right proportions and sequence. The student looking toward teaching as a profession is assisted and directed in the choice and prosecution of his work from the time of his matriculation until his graduation. He does not sacrifice anything of the culture of the Liberal Arts course.

DESIGN OF CURRICULUM

The curriculum is designed to furnish to the prospective teacher who would be thoroughly equipped for his work:

1. Courses calculated to give sound scholarship and that culture rightly expected of the college graduate.
2. Courses in the subjects he expects to teach, of such character and so organized in sequence that when graduated he will be in some measure an authority in these subjects.
3. Courses that will give knowledge of:
 - a. The constitution and needs of society.
 - b. Child and adult natures and their possibilities for modification.
 - c. The educational values of the various school subjects.
 - d. The art of instruction—this knowledge to be both general and concrete and to come in large measure from actual practice in teaching.
 - e. Educational history and its significance, both for the present and the future.

ADMISSION, FEES, AND ADVANCED STANDING

See pages 27, 28, 34.

COURSES OF STUDY LEADING TO THE DEGREE BACHELOR OF ARTS AND A BACHELOR'S DIPLOMA IN EDUCATION

The course of study of the College of Education covers a period of four years, 122 hours of credit being required for graduation. Graduates receive the degree of Bachelor of Arts and a Bachelor's Diploma in Education, which latter certifies that the holder has specialized in the theory and art of education.

The general regulations of the College of Liberal Arts apply in the College of Education.

The course of study is distributed as follows:

English Language	6 hours
Classics and Mathematics, Mathematics and Science, or Science and Classics.....	15 hours
History or Economics	6 hours
Psychology (General and Educational).....	6 hours
History and Philosophy of Education.....	6 hours
Principles of Education.....	3 hours
Principles of Instruction.....	3 hours

Principles and Practice of Teaching.....	6 hours
Philosophy or Sociology or additional Education or Psychology	6 hours
Group Electives, Major and Minors (subjects the student expects to teach).....	50 hours

PREFERRED SCHEDULE

FRESHMAN YEAR

1. ENGLISH LANGUAGE	6
2. CLASSICS, MATHEMATICS OR SCIENCE.....	10
3. HISTORY OR ECONOMICS	6
4. GROUP OR FREE ELECTIVES.....	8
5. REQUIRED PHYSICAL TRAINING.....	2
	<hr/>
	32

SOPHOMORE YEAR

6. CLASSICS, MATHEMATICS OR SCIENCE.....	5
7. a. PSYCHOLOGY	6
b. HISTORY OF EDUCATION.....	6
8-9. GROUP OR FREE ELECTIVES.....	13
	<hr/>
	30

JUNIOR YEAR

PRINCIPLES OF EDUCATION AND INSTRUCTION.....	6
ELECTIVES (in Education group).....	3-6
10. GROUP ELECTIVES (subjects student intends to teach)	20-15
11. FREE ELECTIVES	6-3
	<hr/>
	30

SENIOR YEAR

PRINCIPLES AND PRACTICE OF TEACHING.....	6
ELECTIVES (in Education group).....	0-3
12. GROUP ELECTIVES (subjects student intends to teach)	20-15
13. FREE ELECTIVES	9-6
	<hr/>
	30

GROUPS OF MAJORS AND MINORS

The purpose of the group elective requirement is to secure on the part of the teacher a thorough and systematic knowledge of the subject or subjects he proposes to teach. Usually the teacher in the secondary school is required to teach two or more subjects. Hence it is desirable that he should have a careful and extensive preparation in one subject and sufficient preparation for teaching at least the elementary steps of two or three additional subjects.

The groups of majors and minors are uniform with those of the College of Liberal Arts. See page 58.

PRACTICE TEACHING

Practice teaching, for the most part, is done in a school known as the University Training School in an independent building in which instruction covering the regular course of study of the Boulder schools is offered for all grades from the kindergarten to the last year of the elementary school, inclusive. Practically, it is an ungraded school; a great deal of attention is given each pupil; he has every opportunity for making the most of his capability—of making progress at the speed best suited to him; the naturally “bright” pupil is able to make more than one grade in a year, the “average” pupil proceeds at his gait, and the “slow” pupil goes as rapidly as he can. All pupils are carefully studied and tested with a view to improving mental health and learning ability. A limited opportunity for practice is also offered by the State Preparatory School.

TEACHERS' APPOINTMENTS OFFICE

The Teachers' Appointments Office makes every effort to place students and graduates of the University in the positions for which their general education and professional preparation have fitted them. This committee maintains communication with Superintendents and Boards of Education with reference to vacancies, and invites correspondence from school authorities who are in need of professionally trained teachers. Students of the University, who intend to teach, and graduates of the University, who are now engaged in teaching and who wish to secure better positions, should register with the secretary of the committee.

STATE DIPLOMAS

The 17th General Assembly enacted House Bill No. 423, in which Sections 4 and 7 provide as follows:

Sec. 4. The State Board of Education shall issue State diplomas upon application, without examination, to applicants who shall be graduates of colleges situated within the State of Colorado, which maintain a standard four-year course of collegiate work and require four standard years of high-school work or its equivalent for admission, and who shall also exhibit evidence satisfactory to the State Board of Education of good moral character, and who shall also present evidence to the State Board of Education that they have twenty-four months of successful teaching experience, and who shall also produce evidence satisfactory to the State Board of Education, of professional training equivalent to at least one-sixth of a standard four-years' college course in at least three of the following groups of subjects, one of which shall be Practice Teaching, to-wit:

- (1) General and Educational Psychology.
- (2) History of Education.
- (3) Science and Principles of Education.
- (4) Practice Teaching and Special Methods.
- (5) Organization and Management of Schools.
- (6) Philosophy, Sociology and Anthropology.

Sec. 7. State diplomas, granted under the provisions of this act, shall license the holders thereof to teach in the public schools of any county, city, town, or district in the State without the necessity of any other examination for a period of five years, unless sooner revoked by the State Board of Education, and at the expiration of said time, the same may be renewed for a like period of five years in the discretion of the State Board of Education, and at the expiration of this time, the same may be renewed for life upon presentation to the State Board of Education of satisfactory evidence of professional growth and efficiency; *Provided*, That the State Board of Education shall issue upon application, without examination, to those persons who possess the qualifications set forth in Section 4 of this act, experience in teaching alone excepted, a temporary, non-renewable certificate to teach for five years in the public schools of Colorado.

SCHOOL OF SOCIAL AND HOME SERVICE

FACULTY

LAWRENCE W. COLE, Ph.D.

Director of the School of Social and Home Service.

The Faculty of the School of Social and Home Service consists of Professors and Instructors in the College of Liberal Arts, School of Medicine, School of Pharmacy, and the Training School for Nurses, whose work contributes to the various courses.

REGULAR COURSES

FUNCTION

The course in the School of Social and Home Service is designed for three classes of students: (a) Those who expect to enter training schools for nurses; (b) those desiring to enter social-service activities, such as belong to the work of charitable and corrective institutions, social settlements, etc.; (c) those who wish a short course to prepare themselves for the management of the home.

DESIGN OF CURRICULUM

As will be seen from an examination of the course of study there are four main lines of work which the student pursues, viz.: (a) English, through the entire two years; (b) Science, as a foundation for a knowledge of health, represented by chemistry and the biological sciences, together with various applied subjects, such as Principles of Nursing, Principles of Surgery, Materia Medica, Clinical Laboratory Methods, Infant Hygiene; (c) Economics and Sociology, including Social Ethics; (d) Psychology.

The course is made up of subjects presented by members of the various faculties of the University. A detailed statement may be found in the announcements of the College of Liberal Arts, School of Medicine, College of Pharmacy, and the Training School for Nurses.

ADMISSION AND FEES

Entrance requirements and fees are the same as for students in the regular A.B. course. See pages 27, 28, 34.

RELATION TO THE REGULAR A.B. COURSE

Those who finish the entire course will receive 58 hours' credit toward the A.B. degree and can complete all the requirements for that degree by two years' additional work in properly selected college subjects.

CERTIFICATE

The course is so arranged that students will have preliminary training of considerable value even if obliged to drop the work at

the close of the first year. A certificate showing the work done will be issued to students who complete either one or two years of the course.

COURSE OF STUDY

FIRST YEAR

FIRST SEMESTER		SECOND SEMESTER	
ENGLISH	3	ENGLISH	3
CHEMISTRY	5	CHEMISTRY	5
SANITARY SCIENCE	2	HYGIENE	2
ANATOMY	3	PHYSIOLOGY	3
PRINCIPLES OF ECONOMICS	3	ECONOMIC HISTORY OF THE	
PRINCIPLES OF NURSING	2	UNITED STATES	3
<hr/>		<hr/>	
18		16	

SECOND YEAR

FIRST SEMESTER		SECOND SEMESTER	
LABOR PROBLEMS	3	PROBLEMS IN SOCIOLOGY	2
PSYCHOLOGY (GENERAL)	3	PSYCHOLOGY (EDUCATIONAL)	3
SOCIAL ETHICS	3	ACCOUNTING	3
BACTERIOLOGY	4	INFANT HYGIENE	1
INFANT HYGIENE	1	MATERIA MEDICA	2
ELECTIVE	2	CLINICAL LABORATORY	
		METHODS	1
		ELECTIVE	2
<hr/>		<hr/>	
16		14	

COLLEGE OF ENGINEERING

FACULTY

- LIVINGSTON FARRAND, A.M., M.D., LL.D., President of the University.
MILO S. KETCHUM, C.E., Dean; Professor of Civil Engineering.
HERBERT S. EVANS, E.E., Professor of Electrical Engineering.
JOHN A. HUNTER, M.E., Professor of Mechanical Engineering.
JOHN BERNARD EKELEY, Ph.D., Sc.D., Professor of Chemistry.
OLIVER C. LESTER, Ph.D., Professor of Physics.
HARRY A. CURTIS, B.S. (Ch.E.), Ph.D., Professor of Physical Chemistry.
DAVID R. JENKINS, E.E., Assistant Professor of Electrical Engineering.
WHITNEY C. HUNTINGTON, C.E., Assistant Professor of Civil Engineering.
HOWARD E. PHELPS, C.E., Assistant Professor of Civil Engineering.
FRANK S. BAUER, M.E., Assistant Professor of Mechanical Engineering.
FRANK G. ALLEN, B.S. (M.E.), Assistant Professor of Engineering Drawing.
CHARLES S. SPERRY, A.B., C.E., Assistant Professor of Engineering Mathematics.
IVAN C. CRAWFORD, C.E., Assistant Professor of Civil Engineering.
HERBERT B. DWIGHT, E.E., Assistant Professor of Electrical Engineering.
JAY W. WOODROW, Ph.D., Assistant Professor of Physics.
WILLIAM J. CHRISTIAN, B.S. (M.E.), Instructor in Mechanical Engineering.
CHARLES M. MCCORMICK, E.E., Instructor in Electrical Engineering.
JAMES L. MERRILL, B.S. (C.E.), Instructor in Engineering Drawing.
WALTER F. MALLORY, B.S. (M.E.), Instructor in Mechanical Engineering.
CLARENCE L. ECKEL, B.S. (C.E.), Instructor in Civil Engineering.
EDUARD F. GRUNDHOEFFER, B.S. (M.E.), Instructor in Mechanical Engineering.
JOHN J. FLACH, B.S. (E.E.), Instructor in Engineering Mathematics.

CLAIR V. MANN, B.S. (C.E.), Instructor in Engineering Mathematics.
MATT W. MOYLE, B.S. (M.E.), Instructor in Mechanical Engineering.
WILLARD W. RUSK, B.S. (C.E.), Instructor in Civil Engineering.
ELBERT L. McGRATH, B.S. (C.E.), Instructor in Engineering Mathematics.

PAUL M. DEAN, Ph.D., Instructor in Chemistry.

OSCAR A. RANDOLPH, Ph.D., Instructor in Physics.

CRANSTON B. RADER, Assistant in Electrical Engineering.

PROFESSORS AND INSTRUCTORS IN OTHER DEPARTMENTS

Giving Instruction in the College of Engineering.

RUSSELL D. GEORGE, A.M., Professor of Geology.

FREDERICK A. BUSHEE, Ph.D., Professor of Economics and Sociology.

JESSIE HUTSINPILLAR, A.M., Instructor in English.

ALICE DOWNING, A.M., Instructor in English.

†CHARLES GAUGER, A.B., Instructor in English.

† Appointed, February 1, 1917.

GENERAL STATEMENT

PURPOSE

The College of Engineering was established by the Regents in 1893. The aim in engineering education is to give a thorough training in science, mathematics, language, and mechanics, and in addition to give fundamental courses in engineering so that the graduate may be prepared to enter the profession of engineering.

The work of the first two years of all courses, with a few minor exceptions, is the same. It is aimed in these years to lay a broad foundation for the more specialized work of the last two years. To this end the work is largely theoretical in character, and comprises courses in mathematics, general chemistry and physics, mechanical drawing, rhetoric, and the elements of engineering subjects. Classroom and lecture work is supplemented wherever practicable by laboratory courses.

In the last two years the work is more specialized, and the fourth year is almost entirely devoted to technical work in the several branches of Engineering.

REQUIREMENTS FOR ADMISSION

While the regular time for entrance to the College of Engineering is the opening of the first semester, the subjects are repeated in such a manner that students entering at the opening of the second semester may proceed with their work without loss of time.

For details with reference to admission see pages 27, 29.

ADMISSION TO ADVANCED STANDING

Students from other institutions will be admitted to any class not later than the first term of the senior year on passing examinations in the subjects given in the preceding years in the College of Engineering, or on presentation of satisfactory certificates, showing that the required work has been done in other technical schools. A certificate of honorable dismissal will also be required.

Graduates from other colleges will be admitted without examination, and allowed to pursue such courses as their previous work will permit.

By proper election of subjects in the collegiate course, such as sciences, mathematics, and languages, a graduate of the College of Liberal Arts can obtain his engineering degree in two years. Such a course affords a very broad general training, and is to be highly recommended. Students who expect to complete both the arts and engineering courses should consult the Dean of the College of Engineering before registering in the University.

DEGREES

Upon the satisfactory completion of the prescribed and elective work in any course, the degree, Bachelor of Science in the course pursued, will be conferred.

The degree Master of Science (M.S.) is given upon completion of one year's graduate work in residence after having obtained the degree Bachelor of Science in Engineering. The year's work requires thirty (30) semester hours' credit, of which at least six (6) hours shall be devoted to a thesis.

A candidate for the degree Master of Science in Sanitary Engineering must have received the degree B.S. in Engineering from this University; or if graduated elsewhere, he must satisfy the faculty that he possesses equivalent attainments. In his previous work he must have included courses in Elementary Bacteriology, Water Supply, Sewerage, and Structural Engineering. Study and residence for not less than one year and a thesis on an approved subject are required. A year's work includes thirty (30) hours, of which not less than six (6) hours should be given to the thesis. A student who has received the degree Master of Science in Sanitary Engineering may become a candidate for the degree Doctor of Public Health.

The degree Civil Engineer (C.E.), Electrical Engineer (E.E.), or Mechanical Engineer (M.E.), is given for one year's academic work, and a thesis, after the candidate has had at least one year's responsible charge of engineering work. The year's work requires thirty (30) semester hours' credit, not less than twenty (20) hours of which must be in the same line as the candidate's undergraduate work, and the thesis which requires at least six (6) semester hours' credit, or a total of thirty-six (36) semester hours, required for the degree. One year of residence is required of all resident graduate students. The academic work for graduates of this Institution need not be done in residence. A non-resident candidate must be regis-

tered for at least two years before coming up for the degree of Engineer.

For further details of graduate work, see the Graduate School.

EQUIPMENT

BUILDINGS.

The College of Engineering occupies the Engineering Building and the Engineering Shops situated at the eastern end of the quadrangle. The buildings are well planned for engineering instruction and are devoted entirely to the technical work of the College.

ENGINEERING BUILDING—The basement contains the applied mechanics, timber testing, hydraulics, road materials testing, and cement laboratories.

ENGINEERING SHOPS—The Shops Building consists of a one-story section containing a foundry, a forge shop, and a machine shop, and a two-story section containing a wood-bench shop and a wood-turning shop on the first floor, and a freshman drawing room on the second floor. The mechanical engineering laboratory and the oil testing laboratory occupy a section of the building forty by ninety feet. The one-story section is lighted by means of a modified saw-tooth roof.

CIVIL ENGINEERING EQUIPMENT.

The Department of Civil Engineering possesses an extensive equipment of surveying instruments of the various standard makes, consisting of engineer's transits, solar attachments, mining transits, compasses, engineer's levels, solar compasses, plane tables, a sextant, barometers, chains and tapes, as well as smaller instruments.

The department has two bridge extensometers, manufactured by the Wissler Instruments Works, together with other necessary equipment for the determination of stresses in bridge trusses due to static and moving loads.

Standard apparatus for determining color, turbidity, and other physical properties of water, has been added to the facilities for instruction in sanitary engineering.

The department also possesses an ample collection of drawings, blue prints, and photographs for use in design.

Cement Laboratory.

The Cement Laboratory is equipped with a 2,000-pound Fairbanks shot machine, a 2,000-pound Riehle cement machine, briquette

molds, tanks, Gilmore needles, vicat apparatus, sieves, hot water tanks, specific gravity apparatus, slate slabs, sample barrels of cement, and other necessary apparatus.

Hydraulics Laboratory.

The equipment of the Hydraulics Laboratory consists of tanks supplied with various shaped notches and orifices for discharge instruments, pipes arranged for determining resistance to flow in same, standard orifices and tubes. The laboratory also contains a Venturi meter, water meters, piezometers, current meters, an A Doble 12-inch experimental water wheel equipped for experimental work, three centrifugal pumps, Pitot's tubes, a hook gage, platform scales, hose, and various smaller pieces of hydraulic apparatus.

Laboratory of Applied Mechanics.

The laboratory of Applied Mechanics is equipped with a 30,000-pound Olsen testing machine; a 100,000-pound Olsen testing machine; a 200,000-pound Riehle testing machine that will test a 16-foot beam and an 8-foot column; extensometers; compressometers; a 50,000-in.-lb. Olsen torsion testing machine; a stone saw; and miscellaneous small tools and apparatus necessary for making commercial tests of iron, steel, brick, stone and wood. The laboratory is equipped with a brick rattler, and all other equipment necessary for making commercial tests of paving brick. The equipment of the cement laboratory is available for work in testing cements, mortars, and concrete.

The Laboratory also contains the following equipment especially designed for the work of the U. S. Government Timber Testing Station: a planer, a rip and crosscut saw, a drying oven, a three-point loader, a photographic dark room with full equipment, and miscellaneous tools.

Road Materials Testing Laboratory.

The equipment of the road materials testing laboratory consists of a Page impact machine for testing toughness of rock; a Page impact machine for cementation test; a two-cylinder abrasion machine, Deval type; a Dorry hardness machine; a grinding lap; drying oven; drill press; diamond stone saw; a ball mill, and other minor equipment for making commercial tests of road materials.

ELECTRICAL ENGINEERING LABORATORIES.

The Electrical Engineering Laboratories are well equipped for the study of direct and alternating current appliances, electrical

testing, and the investigation of problems concerning the design, installation and operation of electrical apparatus.

Dynamo Laboratories.

The laboratories include in their equipment twelve complete motor-generator sets for testing purposes. These twelve sets range in capacity from one to fifty horse-power and include both direct current and alternating current motors and generators of various types and designs; some are direct connected, and some are belt connected. There are three double current generators that may be used as single-phase or three-phase synchronous converters, and also a regulating-pole synchronous converter with special features. In addition there is a large amount of miscellaneous equipment such as: a special convertible laboratory set; railway motors; Brush arc-lighting dynamos, etc. Switchboards with plugs and jacks, and arranged for trunking between different laboratories, are provided in each laboratory. Control devices and apparatus are provided for all equipment. Prony brakes and a cradle dynamometer are provided for individual tests. The University power plant is available for testing purposes and affords special opportunities for commercial and operation tests.

Transformer Laboratory.

The transformer equipment comprises four three-phase banks of transformers for various capacities; two sets of transformers for two- to three-phase transformation, or vice versa; an auto-transformer of special design, giving wide range of voltages; a twelve light constant current transformer; a Cooper-Hewitt mercury-arc rectifier; and other transformers for special purposes.

Photometry Laboratory.

The photometer room contains a Reichsanstalt photometer with a 250 centimeter scale, equipped with both Bunsen and Lummer Brodhun screens, a special integrating arc-light photometer, a 5-foot Ulbricht sphere, and a Macbeth illuminometer. The standards include an amylacetate (Hefner) lamp, and seasoned carbon and tungsten incandescent lamps certified by the United States Bureau of Standards. The necessary accessories for exact photometric work are included in the equipment.

Telephone Apparatus.

For the use of classes in telephony, there is a complete telephone laboratory equipment, consisting of a number of different

types of subscribers' sets, together with the necessary central office apparatus and protective devices.

High Frequency and High Potential Equipment.

For the investigation of high tension and high frequency phenomena, the transformer laboratory is equipped with a 22,000 volt transformer, a 50,000 volt special testing transformer, a large condenser, and a number of Tesla coils of special construction.

Electrical Standardizing Laboratory.

The department has a very complete equipment for testing and calibrating all types of electrical measuring instruments for both alternating and direct currents.

Besides the standards, which are among the best obtainable, the equipment comprises a number of motor-generator sets from which may be obtained a wide range of voltages and currents, and all commercial frequencies and power factors.

Measuring Instruments.

The department possesses a large equipment of wattmeters, alternating and direct current ammeters and voltmeters of various ranges and representative makes.

A great variety of integrating wattmeters are used for experimental purposes, and synchronizers, water rheostats, two-lamp banks, a transformer bank and other accessories are provided for testing work.

Commercial Testing.

The University power plant affords the students an excellent opportunity for making commercial tests. The equipment consists of a 150-K.W. three-phase slow speed unit; a 75-K.W. three-phase direct connected alternator with belted exciter; a 35-K.W. direct current compound generator, direct connected; a 25-K.W. steam turbine exciter unit; a 35-K.W. motor generator set; and a thoroughly modern ten-panel switchboard.

MECHANICAL ENGINEERING LABORATORY.

The Mechanical Engineering Laboratory contains necessary apparatus for testing viscosity and other qualities of lubricating oils; calorimeters for determining dryness and heat of steam; injectors and water meters for measuring water for boiler trials; thermometers and pyrometers for measurement of temperatures; Bunte

gas burrettes and chemical reagents for tests of chimney flue gases; anemometers for study of heating and ventilation; calorimeters for the determination of the value of fuels; indicators, reducing motions and planimeters for indicator tests of engines; hydrometers for determinations of specific gravity of liquids; micrometers and extensometers for fine measurements; gauges and manometers for pressures; a Westinghouse Air Brake outfit; an hydraulic ram, engines, pumps, condensers, and a two-ton ice machine. The University power plant and heating system, consisting of three boilers of 600 horse-power capacity, a 225 horse-power Murry Corliss engine, a 125 horse-power Chuse engine, a Leyner air compressor, a 50 horse-power Harrisburg engine, several blowers and pumps furnish opportunities for efficiency tests of boilers with different fuels and of the engines at varying loads.

Workshop Equipment.

The forge equipment consists of the latest type of Buffalo down-draft forges, each with anvil, providing accommodations for twenty students at each session, and also accessory tools for forging, welding, and tool dressing.

The foundry contains a Newton cupola furnace, capable of melting two tons of iron per hour, ladles, flasks, and all necessary small tools, and a stock of patterns. The forges and cupola are served by three centrifugal fans, which are operated by a ten horse-power electrical motor.

The machine shop is equipped with iron workers' benches, planers, a milling machine, speed lathes, engine lathes, a shaper, grindstones, and other tools.

The wood shops occupy two rooms on the first floor, each shop has its own tool room, and is well equipped with benches and speed lathes for fitting and turning work.

GENERAL ENGINEERING DRAWING.

The apparatus for instruction and practice consists of over one hundred models, two folding plane frames of special design, a pantograph, a universal drafting machine, and numerous special drawing instruments. Besides the usual apparatus of frames, bath, and dark room for sun blue printing, the department has an electric blue printing machine.

ENGINEERING LIBRARY.

In addition to books on engineering and scientific subjects in the main University library there is an engineering library located in the Engineering Building. The engineering library contains files of bound volumes of proceedings and transactions of engineering societies, and of most of the best known engineering magazines in America and Europe. A trained librarian is in charge of the engineering library, which is operated as a branch of the main library of the University. The files of proceedings of societies and magazines are made more usable through a very complete set of indexes to engineering literature. The library also contains the standard encyclopedias and dictionaries, as well as numerous standard reference books.

LABORATORY FEES (FOR MATERIAL)*

(Per semester, collected only from students who take the particular courses.)

C.E. 1	Plane Surveying	\$3.00
C.E. 2	Higher Surveying	3.00
C.E. 3	Surveying	2.00
C.E. 4	Railroad Curves	1.00
C.E. 8	Applied Mechanics .....	.50
C.E. 9	Applied Mechanics Laboratory.....	2.00
C.E. 12	Hydraulics Laboratory	2.00
C.E. 17	Structural Details	1.00
C.E. 18	Bridge Details .....	.50
C.E. 20	Algebraic and Graphic Statics.....	1.00
C.E. 21	Bridge Analysis	1.00
C.E. 22	Bridge Design	2.50
C.E. 23	Architectural Construction	1.00
C.E. 24	Steel Mill Buildings	1.00
C.E. 25	Office Buildings	1.00
C.E. 26	Structural Engineering	1.00
C.E. 27	Mine and Mill Structures.....	1.00
C.E. 28	Higher Structures	1.00
C.E. 31	Masonry Construction	1.00
C.E. 32	Reinforced Concrete Structures.....	.50

* See also under description of courses, page 145. For laboratory fees for courses in Chemistry, Physics, and Geology, see pages 34, 35, and for tuition and other fees see pages 34, 35.

C.E. 33	Advanced Reinforced Concrete Design.....	\$1.00
C.E. 41	Highway Engineering	2.00
C.E. 42	Railroad Engineering	2.00
C.E. 47	Railway Structures	1.00
C.E. 59	Irrigation Structures	1.00
E.E. 14	Central Station Design.....	1.00
E.E. 21	Direct Current Laboratory.....	2.00
E.E. 22	Direct Current Laboratory.....	4.00
E.E. 23	Alternating Current Laboratory.....	4.00
E.E. 24	Alternating Current Laboratory.....	2.00
E.E. 25	E.E. Laboratory	2.00
E.E. 26	Photometry Laboratory	2.00
E.E. 27	Experimental Electrical Engineering.....	1.50
E.E. 31	Electrical Design	1.00
E.E. 32	Electrical Design	1.00
E.E. 42	Electric Railway Design.....	1.00
E.E. 43	Design of Electric Railway Equipment.....	1.00
M.E. 23	M.E. Laboratory	2.00
M.E. 24	Steam Engine Laboratory.....	4.00
M.E. 25	M.E. Laboratory	4.00
M.E. 31	Machine Drawing	1.00
M.E. 32	Machine Design	1.00
M.E. 33	Machine Design	1.00
M.E. 35	Machine Design	1.00
M.E. 36	Steam Engine and Boiler Design.....	1.50
M.E. 37	Locomotive Design	1.50
M.E. 38	Power Plant Design	1.00
M.E. 39	Locomotive Shop and Terminal Design.....	1.00
M.E. 40	Chemical Engineering Design.....	1.00
Shop 1	Woodworking	4.00
Shop 2	Forging	4.00
Shop 3	Pattern Making	2.00
Shop 4	Foundry	4.00
Shop 5	Machine Shop	6.00
Shop 6	Machine Shop and Foundry.....	4.00
Draw. 1	Mechanical Drawing	2.00
Draw. 2	Descriptive Geometry	2.00
Draw. 3	Free-Hand Drawing	2.00
Eng.Math. 7	Geodesy and Least Squares.....	1.00
	Thesis (all departments).....	1.50

SUMMARY OF LABORATORY FEES.

Year	Semester	COURSE			
		Civil	Elect.	Mech.	Chem.
Freshman	First	\$8.00	\$8.00	\$8.00	\$8.00
Freshman	Second	8.00	8.00	8.00	8.00
Sophomore	First	7.00	11.00	11.00	16.00
Sophomore	Second	6.00	8.00	10.00	9.00
Junior	First	5.50	9.00	7.50	7.00
Junior	Second	6.50	7.50	7.00	9.50
Senior	First	4.50	10.00	6.50	6.00
Senior	Second	6.00	6.50	7.50	12.50
Total .....	.....	\$51.50	\$68.00	\$65.50	\$76.00

ENGINEERING COURSES

CIVIL ENGINEERING

This course is especially arranged to meet the needs of the Irrigation, Highway, Structural, and Railway Engineer; and has majors in hydraulics, construction of dams, construction of roads and pavements, location of roads and railroads, location of reservoirs and canals, water power engineering, irrigation engineering, structural engineering, and railroad engineering. While the work is made practical by giving the student a large amount of practice in the field, the drafting and computing room, and the laboratory, the main object is the development of the mental faculties and judgment of the student.

The general studies and surveying of the first two years lead up to courses in theoretical and applied mechanics, railroads, roads and pavements, hydraulics, graphic statics and geodesy in the junior year, followed in the senior year by courses in bridge design, office building design, design of mill buildings and bins, water supply, sewerage, masonry construction, reinforced concrete construction, irrigation engineering, and railroad engineering.

Besides instruction in strictly engineering subjects, courses are given in economics, rhetoric, geology, bacteriology, astronomy, and the law of contracts.

Numerous inspection trips are made during the junior and senior years, to give the students an opportunity to get in touch with the practical side of engineering work.

ELECTRICAL ENGINEERING

It is the aim of the Department of Electrical Engineering to provide thorough theoretical and practical training for those desirous of engaging in the various applications of electricity.

Electrical engineering work proper begins in the junior year with courses in electricity and magnetism, theory and method of electrical measurements with direct applications to the theory, design and operation of continuous current apparatus. The theoretical work in alternating currents is begun in the second semester of this year.

The senior year is largely devoted to a study of the design and operation of alternating current apparatus, such as generators, transformers, synchronous and induction motors, rotary converters and transformers; distribution and transmission, electric traction and power plant construction and operation, lighting and metering; the telephone and telegraph; and other applications of electricity to the arts. The design of apparatus is studied by lectures and solution of problems in the drawing room.

Particular attention is given throughout to the proper correlation of classroom study to laboratory work; to this end courses are given in the testing and handling of the various types of direct and alternating current machinery. In connection with the work in lighting and illumination, complete tests are made of the various types of electric lamps. Frequent inspection trips are made to the numerous large power plants in the vicinity, and every opportunity is taken to acquaint the student with the engineering problems of his profession.

MECHANICAL ENGINEERING

This course is intended to train students along the broad lines of Mechanical Engineering. In the second year the students are given practical instruction in elementary studies of the kinematics of machinery and of machine design.

In the junior and senior years the course includes the theory of machine design, valve-gear movements, applied mechanics of both building structures and moving machinery; thermodynamics, including the study of steam, gasoline, and refrigerator engines; the theory of direct current electricity, and practical instruction in designing specific machines and power plants; shop-work; thorough instruction in the electrical and mechanical laboratories, in efficiency tests of engines, boilers, motors, blowers, pumps, calorimeters, injectors, etc., as well as general tests of boiler feed waters, lubricating oils, cements, flue gases, steam, fuels, steel and iron. Students are also given instruction in conducting practical duty trials of power plants.

CHEMICAL ENGINEERING

The great development in the United States during the last decade, of chemical and metallurgical industries, such as the manufacture of alkalis, fertilizers, beet sugar, Portland cement, by-

products from coal and petroleum, acids from sulphide ores, plate glass, pottery, etc., where a combined knowledge of mechanical engineering and chemistry is needed for competent supervision, has suggested the inauguration of this course. The course in Chemical Engineering is designed to give a major in chemistry and to give fundamental training in engineering. Students taking this course pursue courses in chemistry, physics, mathematics, and mechanics for the first two years; in the junior and senior years they are given special instruction in designing chemical machinery and in chemical analysis of fuels, gases, steel and iron, electrometallurgy, etc.

REQUIREMENTS FOR DEGREE BACHELOR OF SCIENCE IN ENGINEERING

CIVIL ENGINEERING

FRESHMAN YEAR*

FIRST SEMESTER		SECOND SEMESTER	
Algebra (Eng. Math. 1)†	3	Analytic Geometry (Eng. Math. 3)	5
Trigonometry (Eng. Math. 2)	2	Chemistry Lectures (Chem. 1)	3
Chemistry Lectures (Chem. 1)	3	Chemistry Laboratory (Chem. 2)	2
Chemistry Laboratory (Chem. 2)	2	Rhetoric (English 2)	3
Rhetoric (English 1)	3	Engineering Literature (English 3)	2
Drawing (Draw. 1)	3	Descriptive Geometry (Draw. 2)	3
	16		18

SOPHOMORE YEAR

FIRST SEMESTER		SECOND SEMESTER	
Differential Calculus (Eng. Math. 4)	5	Integral Calculus (Eng. Math. 5)	5
Physics (Phys. 1 and 3)	5	Physics (Phys. 2 and 4)	5
Railroad Curves (C. E. 4)	2	Technical Mechanics (C. E. 6)	2
Plane Surveying (C. E. 1)	4	Higher Surveying (C. E. 2)	4
Roads and Pavements (C. E. 40)	1	Engineering Materials (C. E. 14)	2
Timber Structures (C. E. 16)	1		
	18		18

JUNIOR YEAR

FIRST SEMESTER		SECOND SEMESTER	
Technical Mechanics (C. E. 7)	3	Hydraulics (C. E. 11)	2
Applied Mechanics (C. E. 8)	3	Hydraulics Laboratory (C. E. 12)	1
Applied Mechanics Laboratory (C. E. 9)	1	Geodesy (Eng. Math. 7), or	
Geology (Geol. 3)	3	Economics (Econ. 3)	3
Railroads (C. E. 42)	4	Steam Engines and Boilers (M. E. 6)	2
Structural Details (C. E. 17)	2	Algebraic and Graphic Statics (C. E. 20)	3
Technical Writing (English 4)	2	Bridge Details (C. E. 18)	1
		Option 1	2
		Option 2	2
		Bacteriology (C. E. 50)	2
	18		18

* All freshman students are required to attend technical lectures given each second week during the year.

† These references are to the description of courses in the College of Liberal Arts or to the description of courses in the College of Engineering.

SENIOR YEAR

FIRST SEMESTER			SECOND SEMESTER		
Bridge Analysis	(C. E. 21)	3	Bridge Design	(C. E. 22)	3
Steel Mill Buildings	(C. E. 24)	3	Higher Structures	(C. E. 28)	4
Water Supply	(C. E. 51)	3	Engineering Contracts and Specifications	(C. E. 60)	2
Reinforced Concrete Structures	(C. E. 32)	2	Option 4		2
Masonry Construction	(C. E. 31)	5	Sewerage	(C. E. 52)	2
Option 3		2	C. E. Seminar	(C. E. 61)	1
			Thesis* or Option 5		2
		<hr/> 18			<hr/> 16

OPTIONS IN CIVIL ENGINEERING COURSE

Civil engineering students in the junior year shall elect to take the courses in one of the three groups of options. These options are grouped under the head of Structural Engineering, of Railway Civil Engineering, and of Irrigation and Highway Engineering. No grouping of options other than as given will be permitted.

STRUCTURAL ENGINEERING

1. Architectural Construction (C. E. 23) 2
2. Heating and Ventilation (M. E. 10) 2
3. Office Buildings (C. E. 25) 2
4. Mine and Mill Structures (C. E. 27) 2
5. Advanced Reinforced Concrete Design (C. E. 33) 2

RAILWAY CIVIL ENGINEERING

1. Railway Maintenance (C. E. 44) 2
2. Railway Terminals (C. E. 43) 2
3. Railway Operation (C. E. 45) 2
4. Modern Railway Problems (C. E. 46) 2
5. Railway Structures (C. E. 47) 2

IRRIGATION AND HIGHWAY ENGINEERING

1. Canal and Reservoir Location (C. E. 56) 2
2. Highway Engineering (C. E. 41) 2
3. Water Power Engineering (C. E. 57) 2
4. Irrigation Engineering (C. E. 58) 2
5. Irrigation Structures (C. E. 59) 2

*Only exceptional students are permitted to elect thesis.

ELECTRICAL ENGINEERING

FRESHMAN YEAR*

FIRST SEMESTER		SECOND SEMESTER	
Algebra	(Eng. Math. 1) 3	Analytic Geometry	(Eng. Math. 3) 5
Trigonometry	(Eng. Math. 2) 2	Chemistry Lectures	(Chem. 1) 3
Chemistry Lectures	(Chem. 1) 3	Chemistry Laboratory	(Chem. 2) 2
	(Chem. 2) 2	Rhetoric	(English 2) 3
Rhetoric	(English 1) 3	Engineering Literature	(English 3) 2
Drawing	(Draw. 1) 3	Descriptive Geometry	(Draw. 2) 3
<hr/>		<hr/>	
16		18	

SOPHOMORE YEAR

FIRST SEMESTER		SECOND SEMESTER	
Differential Calculus	(Eng. Math. 4) 5	Integral Calculus	(Eng. Math. 5) 5
Physics	(Phys. 1 and 3) 5	Physics	(Phys. 2 and 4) 5
Forging	(Shop 2) 2	Machine Shop and Foundry	(Shop 6) 2
Wood Shop	(Shop 1) 2	Machine Drawing	(M. E. 31) 2
Kinematics	(M. E. 1) 2	Engineering Materials	(E. E. 16) 2
Machine Drawing	(M. E. 30) 1	Theoretical Mechanics	(Phys. 5) 2
Electric and Magnetic Circuits	(E. E. 7) 1	<hr/>	
<hr/>		18	

JUNIOR YEAR

FIRST SEMESTER		SECOND SEMESTER	
Theoretical Mechanics	(Phys. 6) 3	Applied Mechanics	(C. E. 8) 3
Steam Engines and Boilers	(M. E. 6) 2	Applied Mechanics Laboratory	(C. E. 9) 1
Direct Current Machines	(E. E. 1) 3	Thermodynamics	(M. E. 7) 3
Illumination and Photometry	(E. E. 8) 2	Organization and Management	(E. E. 17) 2
Theory of Electricity and Magnetism	(Phys. 8) 3	Alternating Current Machines	(E. E. 2) 3
Electrical Measurements	(Phys. 9) 2	Direct Current Laboratory	(E. E. 22) 2
M. E. Laboratory	(M. E. 23) 1	Technical Writing	(English 4) 2
Direct Current Laboratory	(E. E. 21) 1	Machine Design	(M. E. 35) 2
Photometry Laboratory	(E. E. 26) 1	<hr/>	
<hr/>		18	

* All freshman students are required to attend technical lectures given each second week during the year.

SENIOR YEAR

FIRST SEMESTER			SECOND SEMESTER		
Theory of Alternating Currents	(E. E. 3)	4	Theory of Alternating Currents	(E. E. 4)	2
Alternating Current Laboratory	(E. E. 23)	2	Alternating Current Laboratory	(E. E. 24)	1
Hydraulics	(C. E. 11)	2	Engineering Contracts and Specifications	(C. E. 60)	2
Steam Engine Laboratory	(M. E. 24)	2	E. E. Seminar	(E. E. 12)	1
Structural Engineering	(C. E. 26)	2	Surveying	(C. E. 3)	2
Transmission and Distribution	(E. E. 6)	2	Option 3		3
Option 1		2	Option 4		2
Option 2		2	Thesis* or Option 5		3
		<hr/> 18			<hr/> 16

OPTIONS IN ELECTRICAL ENGINEERING COURSE

Electrical engineering students in the senior year shall elect to take the courses in one of the two groups of options. These options are grouped under the head of Power and Lighting Engineering and of Railway Electrical Engineering. No grouping of options other than as given will be permitted.

POWER AND LIGHTING ENGINEERING.

- | | | |
|--|------------|---|
| 1. Electric Traction | (E. E. 44) | 2 |
| 2. Electrical Design | (E. E. 31) | 2 |
| 3. Central Station Design | (E. E. 14) | 3 |
| 4. Telephone Engineering | (E. E. 5) | 2 |
| 5. Experimental Electrical Engineering | (E. E. 27) | 3 |

RAILWAY ELECTRICAL ENGINEERING

- | | | |
|---|------------|---|
| 1. Electric Railway Engineering | (E. E. 40) | 2 |
| 2. Design of Electric Railway Equipment | (E. E. 43) | 2 |
| 3. Electrical Railway Design | (E. E. 42) | 3 |
| 4. Electric Railway Engineering | (E. E. 41) | 2 |
| 5. Experimental Electrical Engineering | (E. E. 27) | 3 |

*Only exceptional students are permitted to elect thesis.

MECHANICAL ENGINEERING

FRESHMAN YEAR*

FIRST SEMESTER			SECOND SEMESTER		
Algebra	(Eng. Math. 1)	3	Analytic Geometry	(Eng. Math. 3)	5
Trigonometry	(Eng. Math. 2)	2	Chemistry Lectures	(Chem. 1)	3
Chemistry Lectures	(Chem. 1)	3	Chemistry Laboratory	(Chem. 2)	2
Chemistry Laboratory	(Chem. 2)	2	Rhetoric	(English 2)	3
Rhetoric	(English 1)	3	Engineering Literature	(English 3)	2
Drawing	(Draw. 1)	3	Descriptive Geometry	(Draw. 2)	3
		<hr/> 16			<hr/> 18

SOPHOMORE YEAR

FIRST SEMESTER			SECOND SEMESTER		
Differential Calculus	(Eng. Math. 4)	5	Integral Calculus	(Eng. Math. 5)	5
Physics	(Phys. 1 and 3)	5	Physics	(Phys. 2 and 4)	5
Wood Shop	(Shop 1)	2	Foundry	(Shop 4)	2
Forging	(Shop 2)	2	Pattern Making	(Shop 3)	1
Kinematics	(M. E. 1)	2	Technical Mechanics	(C. E. 6)	2
Machine Drawing	(M. E. 30)	1	Engineering Materials	(M. E. 3)	1
Engineering Materials	(M. E. 2)	1	Machine Drawing	(M. E. 31)	2
		<hr/> 18			<hr/> 18

JUNIOR YEAR

FIRST SEMESTER			SECOND SEMESTER		
Technical Mechanics	(C. E. 7)	3	Hydraulics	(C. E. 11)	2
Applied Mechanics	(C. E. 8)	3	Applied Mechanics	(C. E. 9)	1
Steam Engines and Boilers	(M. E. 4)	4	Laboratory	(M. E. 8)	2
Electrical Machinery	(E. E. 9)	2	Thermodynamics	(E. E. 10)	3
Machine Design	(M. E. 32)	3	Electrical Machinery	(E. E. 25)	1
Machine Shop	(Shop 5)	3	E. E. Laboratory	(English 4)	2
			Technical Writing	(M. E. 33)	2
			Machine Design	(M. E. 34)	2
			Mechanics of Machinery	(M. E. 23)	1
			M. E. Laboratory		2
			Option 1		2
		<hr/> 18			<hr/> 18

* All freshman students are required to attend technical lectures given each second week during the year.

SENIOR YEAR

FIRST SEMESTER		SECOND SEMESTER	
Thermodynamics	(M. E. 9) 2	Steam Turbines	(M. E. 17) 3
Automobiles and Gas Engines	(M. E. 12) 2	Engineering Contracts and Specifications	(C. E. 60) 2
Steam Engine Laboratory	(M. E. 24) 2	M. E. Laboratory	(M. E. 25) 2
Hydraulic Machinery	(M. E. 13) 2	Compressed Air	(M. E. 18) 2
M. E. Seminar	(M. E. 16) 1	Surveying	(C. E. 3) 2
Valve Gears	(M. E. 15) 1	Option 3	2
Works Management	(M. E. 14) 2	Thesis* or Option 4	3
Structural Engineering	(C. E. 26) 2		
Option 2	4		
	<hr/> 18		<hr/> 16

OPTIONS IN MECHANICAL ENGINEERING

Mechanical engineering students in the junior year shall elect to take the courses in one of the two groups of options. These options are grouped under the head of General Mechanical Engineering and of Railway Mechanical Engineering. No grouping of options other than as given will be permitted.

GENERAL MECHANICAL ENGINEERING

1. Heating and Ventilation (M. E. 10) 2
2. Steam Engine and Boiler Design (M. E. 36) 4
3. Refrigerating Machinery (M. E. 19) 2
4. Power Plant Design (M. E. 38) 3

RAILWAY MECHANICAL ENGINEERING

1. Locomotives and Air Brakes (M. E. 11) 2
2. Locomotive Design (M. E. 37) 4
3. Railway Operation and Signals (M. E. 20) 2
4. Locomotive Shop and Terminal Design (M. E. 39) 3

*Only exceptional students are permitted to elect thesis.

CHEMICAL ENGINEERING

FRESHMAN YEAR*

FIRST SEMESTER			SECOND SEMESTER		
Algebra	(Eng. Math. 1)	3	Analytic Geometry	(Eng. Math. 3)	5
Trigonometry	(Eng. Math. 2)	2	Chemistry Lectures	(Chem. 1)	3
Chemistry Lectures	(Chem. 1)	3	Chemistry Laboratory	(Chem. 2)	2
Chemistry Laboratory	(Chem. 2)	2	Rhetoric	(English 2)	3
Rhetoric	(English 1)	3	Engineering Literature	(English 3)	2
Drawing	(Draw. 1)	3	Descriptive Geometry	(Draw. 2)	3
<hr/>			<hr/>		
16			18		

SOPHOMORE YEAR

FIRST SEMESTER			SECOND SEMESTER		
Differential Calculus	(Eng. Math. 4)	5	Integral Calculus	(Eng. Math. 5)	5
Physics	(Phys. 1 and 3)	5	Physics	(Phys. 2 and 4)	5
Qualitative Analysis	(Chem. 3)	3	Quantitative Analysis	(Chem. 6)	3
Quantitative Analysis	(Chem. 5)	4	Technical Mechanics	(C. E. 6)	2
Engineering Materials	(M. E. 2)	1	Engineering Materials	(M. E. 3)	1
			Kinematics	(M. E. 1)	2
<hr/>			<hr/>		
18			18		

JUNIOR YEAR

FIRST SEMESTER			SECOND SEMESTER		
Technical Mechanics	(C. E. 7)	3	Applied Mechanics	(C. E. 8)	3
Steam Engines and Boilers	(M. E. 6)	2	Applied Mechanics Laboratory	(C. E. 9)	1
Physical Chemistry Lectures	(Chem. 17)	3	Thermodynamics	(M. E. 7)	3
Machine Drawing	(M. E. 30)	1	Machine Design	(M. E. 35)	2
Machine Drawing	(M. E. 31)	2	Physical Chemistry Lectures	(Chem. 17)	3
Electrical Machinery	(E. E. 9)	2	Electrical Machinery	(E. E. 10)	3
Technical Writing	(English 4)	2	E. E. Laboratory	(E. E. 25)	1
M. E. Laboratory	(M. E. 23)	1	Physical Chemistry Laboratory	(Chem. 18)	2
Ore Analysis	(Chem. 10)	2			
<hr/>			<hr/>		
18			18		

SENIOR YEAR

FIRST SEMESTER			SECOND SEMESTER		
Hydraulics	(C. E. 11)	2	Economic Geology	(Geol. 4)	3
Steam Engine Laboratory	(M. E. 24)	2	Engineering Contracts and Specifications	(C. E. 60)	2
Structural Engineering	(C. E. 26)	2	Organic Preparations	(Chem. 14)	3
Engineering Geology	(Geol. 3)	3	Industrial Chemistry	(Chem. 22)	3
Works Management	(M. E. 14)	2	Surveying	(C. E. 3)	2
Organic Chemistry Lectures	(Chem. 12)	4	Thesis† or Steam Turbines	(M. E. 17)	3
Chemical Engineering Design	(M. E. 40)	3			
<hr/>			<hr/>		
18			16		

* All freshman students are required to attend technical lectures given each second week during the year.

† Only exceptional students are permitted to elect thesis.

DESCRIPTION OF COURSES

CIVIL ENGINEERING

DEAN KETCHUM, ASSISTANT PROFESSORS HUNTINGTON, PHELPS, AND CRAWFORD, AND MR. ECKEL AND MR. RUSK:—

1. PLANE SURVEYING. Either semester. One hour lecture, nine hours in field. 4 h.

Instruction is given in the theory of surveying and in the theory, use and adjustment of the compass, level, transit, plane table and sextant. The field work includes pacing and chaining surveys; compass and transit traverses; measurement of angles by repetition; differential, profile, and contour leveling; traverses with the plane-table, etc. Maps and reports are required. Considerable time is given to a study of U. S. Land Survey methods, and to court decisions relating to relocation of corners, lines, and boundaries. Fee, \$3.00.

Textbook: Pence and Ketchum's Surveying Manual.

Prerequisite: Eng. Math. 1 and 2, and Draw. 1.

2. HIGHER SURVEYING. Second semester. One hour lecture, nine hours in field. 4 h.

In this course the different methods of making topographic surveys are discussed. A complete topographic survey based on a carefully designed triangulation system is made. The calculations are made and a map is drawn. Considerable time is devoted to topographic drawing. Fee, \$3.00.

Textbooks: Pence and Ketchum's Surveying Manual, Johnson and Smith's Theory and Practice of Surveying, and notes by the Department.

Prerequisite: C.E. 1.

3. SURVEYING. Second semester. Six hours in field. 2 h.

A brief course in surveying and in the theory and use of the level, transit, and other instruments, for electrical, mechanical, and chemical engineering students. The work covers prob-

lems in pacing, chaining, compass and transit surveys, profile and contour leveling, laying out buildings, etc. Fee, \$2.00.

Textbook: Pence and Ketchum's Surveying Manual.

Prerequisite: Eng. Math. 1, 2 and 3, Draw. 1, and Phys. 1 to 4.

4. RAILROAD CURVES. First semester. One hour lecture, three hours in field. 2 h.

A study is made of simple, compound, reversed, parabolic curves, and the transition spiral. Instruction consists of recitations, problems, and field locations. Fee, \$1.00.

Textbook: Allen's Railroad Curves and Earthwork.

Prerequisite: To be taken with C.E. 1.

6. TECHNICAL MECHANICS. Either semester. 2 h.

The mechanics of engineering rather than of astronomy and physics is here considered. Particular attention is given to developing and fixing fundamental concepts of equilibrium and motion as applied to engineering problems. Both algebraic and graphic methods of the calculation of problems are considered. This course is followed by C.E. 7.

Textbook: Maurer's Technical Mechanics.

Prerequisite: Eng. Math. 4 and Phys. 1, and to be taken with Eng. Math. 5.

7. TECHNICAL MECHANICS. Either semester. 3 h.

A continuation of C.E. 6.

Textbook: Maurer's Technical Mechanics.

Prerequisite: Eng. Math. 5 and C.E. 6.

8. APPLIED MECHANICS. Either semester. 3 h.

This course covers the elasticity of materials; stress and strain; working stresses; resistance of pipes and riveted joints; bending moment; resisting moment; shear; elastic curve of beams; torsion; internal stress; fatigue of metals; etc. Fee, \$0.50.

Textbook: Boyd's Strength of Materials.

Prerequisite: Eng. Math. 4 and 5, and Phys. 5 and 6, or C.E. 6 and to be taken with C.E. 7.

9. APPLIED MECHANICS LABORATORY. Either semester. Three hours in laboratory. 1 h.

Experiments on strength of steel, wrought and cast iron;

shear on rivets; strength of wood; and tensile and compressive strength of Portland cement, brick and building stone. Fee, \$2.00.

Prerequisite: To be taken with C.E. 8.

10. ADVANCED APPLIED MECHANICS. Second semester. 2 h. Elective.

This course covers an extended discussion of combined stresses, resilience, stresses in beams, deflection of beams, torsion, pipes and cylinders, curved bars, and arches.

Textbook: Morley's Strength of Materials.

Prerequisite: C.E. 8 and 20.

11. HYDRAULICS. Either semester. 2 h.

This course covers the weight and pressure of water; head; center of pressure, velocity and discharge through orifices, tubes, nozzles, pipes, hose, weirs, conduits, canals, rivers; meters and measurements; motors, turbines, and water wheels.

Textbook: Daugherty's Hydraulics.

Prerequisite: Eng. Math. 4 and 5, and Phys. 5 and 6, or C.E. 6 and 7.

12. HYDRAULICS LABORATORY. Second semester. Three hours in laboratory. 1 h.

Experiments on flow of water over weirs, through orifices, in open channels and pipes; tests of pumps; reaction and turbine water wheels, etc.; determination of coefficients of friction in hose and pipes. Fee, \$2.00.

Prerequisite: C.E. 7, and to be taken with C.E. 11.

13. ADVANCED HYDRAULICS. Second semester. 2 h. Elective.

An extended study of flow in pipes, nozzles, conduits, canals and rivers; of velocity and discharge; water hammer; dynamic action of streams; turbine and pump theory; hydraulic rams, lifts, hoists and meters.

Textbook: Gibson's Hydraulics and Its Application.

Prerequisite: C.E. 11.

14. ENGINEERING MATERIALS. Second semester. 2 h.

A study is made of the properties and requirements for materials used in engineering construction, the effect of differ-

ent methods of manufacture upon the quality of the material, and specifications and standard tests for materials.

Textbook: Mills' Materials of Construction.

Prerequisite: Eng. Math. 3 and Phys. 1.

16. **TIMBER STRUCTURES.** First semester. 1 h.

A study of the joints and fastenings used in timber framing, and the details of timber structures.

Textbook: Jacoby's Structural Details.

Prerequisite: Draw. 1, Eng. Math. 1 and 2, and to be taken with Phys. 1 and 2.

17. **STRUCTURAL DETAILS.** First semester. Six hours in drawing room. 2 h.

Design and detail drawings of beams, columns, roof trusses and trestles of timber and of steel. Fee, \$1.00.

Textbooks: Ketchum's Structural Engineers' Handbook, and Jacoby's Structural Details.

Prerequisite: C.E. 6, and to be taken with C.E. 8.

18. **BRIDGE DETAILS.** Second semester. Three hours in drawing room. 1 h.

The estimation of weight and cost of a steel highway bridge, and the study of bridge details. Fee, \$0.50.

Textbook: Ketchum's Structural Engineers' Handbook.

Prerequisite: C.E. 8 and 17.

20. **ALGEBRAIC AND GRAPHIC STATICS.** Second semester. Two hours lecture, three hours in drawing room. 3 h.

The elements of statics by algebraic and graphic methods, and stresses in simple roof trusses and bridges. Fee, \$1.00.

Textbook: Ketchum's Design of Steel Mill Buildings.

Prerequisite: C.E. 6, 7 and 8.

21. **BRIDGE ANALYSIS.** First semester. One hour lecture, six hours in drawing room. 3 h.

This course includes the calculations of stresses in bridges and girders loaded with uniform and concentrated loads, by algebraic and graphic methods; stresses in portals, pins, and other details preliminary to bridge design. Each student calculates the stresses in, and investigates the efficiencies of, the members of a highway bridge. Fee, \$1.00.

Textbook: Ketchum's Design of Highway Bridges.

Prerequisite: C.E. 18 and 20.

22. BRIDGE DESIGN. Second semester. Nine hours in drawing room. 3 h.

The detailed design of a railway truss bridge and a railway plate girder bridge, including the making of complete detail drawings and an estimate of weight and cost. Fee, \$2.50.

Textbook: Ketchum's Structural Engineers' Handbook, and Johnson, Bryan and Turneure's Modern Framed Structures, Part III.

Prerequisite: C.E. 21.

23. ARCHITECTURAL CONSTRUCTION. Second semester. One hour lecture, three hours in drawing room. 2 h.

A study of the details of architectural construction, including working drawings, perspective, etc. Fee, \$1.00.

Prerequisite: C.E. 16 and 17.

24. STEEL MILL BUILDINGS. First semester. Two hours lecture, three hours in drawing room. 3 h.

A study of steel mill buildings, mine structures, grain elevators, ore bins, retaining walls, etc. Fee, \$1.00.

Textbooks: Ketchum's Design of Steel Mill Buildings, and Ketchum's Design of Walls, Bins, and Grain Elevators.

Prerequisite: C.E. 18 and 20, and to be taken with C.E. 21.

25. OFFICE BUILDINGS. First semester. One hour lecture, three hours in drawing room. 2 h.

The design and details of office buildings of steel and of reinforced concrete. Fee, \$1.00.

Prerequisite: C.E. 23 and to be taken with C.E. 21 and 24.

26. STRUCTURAL ENGINEERING. First semester. One hour lecture, three hours in drawing room. 2 h.

This course includes the elements of statics by algebraic and graphic methods, the calculation of stresses in roof trusses, and the design of shops and mill buildings. Fee, \$1.00.

Textbook: Ketchum's Design of Steel Mill Buildings.

Prerequisite: C.E. 8.

27. MINE AND MILL STRUCTURES. Second semester. One hour lecture, three hours in drawing room. 2 h.

A study of the design of head frames, coal tipples, coal

washers and breakers, concentrating plants, and other mine structures. Fee, \$1.00.

Textbook: Ketchum's Design of Mine Structures.

Prerequisite: C.E. 21, 24, and 32, and to be taken with C.E. 28.

28. HIGHER STRUCTURES. Second semester. Two hours lecture, six hours in drawing room. 4 h.

The calculation of stresses in swing bridges, suspension bridges, arch bridges, and cantilever bridges, office building frames, and other statically indeterminate structures. Fee, \$1.00.

Textbook: Johnson, Bryan and Turneure's Framed Structures, Part II, and notes.

Prerequisite: C.E. 21 and 24, and to be taken with C. E. 22.

31. MASONRY CONSTRUCTION. First semester. Three hours lecture, six hours in drawing room. 5 h.

A study of cements, concrete, retaining walls, dams, arches, and other masonry and reinforced concrete structures. A complete investigation of a reinforced concrete arch is made, using the elastic theory. Considerable time is given to the design of structures. Fee, \$1.00.

Textbooks: Taylor and Thompson's Concrete, Plain and Reinforced; Baker's Masonry Construction, and Ketchum's Design of Walls, Bins and Grain Elevators.

Prerequisite: C.E. 8 and 20.

32. REINFORCED CONCRETE STRUCTURES. First semester. One hour lecture, three hours in drawing room. 2 h.

A study is made of the theory of reinforced concrete, and the design of reinforced concrete structures. Fee, \$0.50.

Textbook: Hool's Reinforced Concrete Construction, Vol. I.

Prerequisite: C.E. 20 and to be taken with C.E. 31.

33. ADVANCED REINFORCED CONCRETE DESIGN. Second semester. Six hours in drawing room. 2 h.

This course includes the preparation of designs and detailed drawings of reinforced concrete bridges and buildings. Fee, \$1.00.

Textbooks: Hool's Reinforced Concrete Construction, Vol. III, and Taylor and Thompson's Concrete, Plain and Reinforced.

40. **ROADS AND PAVEMENTS.** First semester. 1 h.

A detailed study of country roads and city pavements, together with a study of road building materials.

Textbook: Blanchard's Elements of Highway Engineering.

Prerequisite: To be taken with C.E. 1.

41. **HIGHWAY ENGINEERING.** Second semester. One hour lecture, three hours in laboratory. 2 h.

A detailed study of road building materials, testing, surveys, the design of streets, the construction of modern pavements, road economics, etc. Fee, \$2.00.

Textbook: Blanchard and Drowne's Textbook on Highway Engineering, and notes by the Department.

Prerequisite: C.E. 40 and 42.

42. **RAILROAD ENGINEERING.** First semester. Two hours lecture, six hours in field and drawing room. 4 h.

Instruction in railroad engineering consists of field practice, office, and classroom work. Field practice consists of the complete location of a line of railroad. In the office the quantities are calculated, and profiles and a complete map are drawn. In the classroom a detailed study is made of the principles of economic location and construction, maintenance of way, and railway structures and appliances. Fee, \$2.00.

Textbooks: Allen's Railroad Curves and Earthwork, Webb's Economics of Railroad Construction, and references.

Prerequisite: C.E. 1, 2 and 4.

43. **RAILROAD TERMINALS AND BLOCK SIGNALS.** Second semester. 2 h.

This course includes a study of the design of train yards, with special attention given to gravity layouts; methods of switching and of making up trains; special terminal arrangements for large cities, and terminal structures. Some time is also devoted to railway signaling.

Textbooks: Droege's Freight Terminals and Trains, and Latimer's Signaling.

Prerequisite: C.E. 42.

44. **RAILWAY MAINTENANCE.** Second semester. 2 h.

Rail and tie renewals, surfacing, manufacture of rails, rail failures, ballast, sidings, crossings, and track accessories, are

studied in detail. Some time is given to organization of maintenance forces.

Textbook: Willard's Maintenance of Way and Structures.

Prerequisite: C.E. 42.

45. RAILWAY OPERATION. First semester. 2 h.

Railway organization, conducting of traffic, train and car service, records and accounts constitute the basis for study in this course. Valuation of railroads is also given some attention.

Textbook: Byer's Railway Operation.

Prerequisite: C.E. 43 and 44.

46. MODERN RAILWAY PROBLEMS. Second semester. 2 h.

Special problems of location, operation and terminal facilities are studied in detail.

Textbook: Lauchli's Tunneling, and references and notes.

Prerequisite: C.E. 45.

47. RAILWAY STRUCTURES. Second semester. Six hours in drawing room. 2 h.

The design of yards, terminals, signal towers, water tanks, coaling stations, and other railway structures. Fee, \$1.00.

Prerequisite: C.E. 21, 24, 31, 32 and 44.

50. BACTERIOLOGY. Second semester. 2 h.

Lectures and laboratory demonstration.

This course covers a study of bacteriological methods and their application in water analysis and sewerage.

Textbook: Hiss and Zinsser's A Textbook of Bacteriology.

Prerequisite: Chem. 1 and 2, and Phys. 1 to 4.

51. WATER SUPPLY. First semester. 3 h.

This course covers the principal features of water works design and construction, including quantity and quality of potable water; choice of supply; the designing of distribution systems, reservoirs, dams, and elevated tanks.

Textbook: Turneaure and Russell's Public Water Supplies.

Prerequisite: C.E. 11 and 50.

52. SEWERAGE. Second semester. 2 h.

This course covers the design and construction of sewerage systems, including separate and combined systems; surveys

and plans, determination of size and capacity; construction; and modern methods of sewage disposal.

Textbook: Metcalf and Eddy's American Sewerage Practice, Volume I, and references.

Prerequisite: C.E. 11 and 51.

56. CANAL AND RESERVOIR LOCATION. Second semester. One hour lecture, three hours in drawing room. 2 h.

A study is made of special methods of topographic surveys, economic location of canals, considering both cost of construction and of operation, limiting velocities, effects of curvature, diagrams and charts for facilitating this kind of work. Methods of estimating capacity and cost of reservoirs, selection of reservoir and dam sites as governed by geological formations. Drainage and reclamation of wet and irrigated lands. Some practice is given in actual canal location.

Textbooks: Hoyt and Grover's River Discharge, Etcheverry's Irrigation Engineering, Vol. II, and special articles and notes.

Prerequisite: C.E. 2, 4, and 42, and to be taken with C.E. 11.

57. WATER POWER ENGINEERING. First semester. 2 h.

Stream flow including hydrographs of actual streams; impulse wheels and reaction turbines and the conditions governing their selection; storage and the relation of the reservoir to the power station; economics of power development, its sale and distribution.

Textbook: Mead's Water Power Engineering.

Prerequisite: C.E. 7, 11, and 12, and to be taken with C.E. 31.

58. IRRIGATION ENGINEERING. Second semester. 2 h.

In this course a study is made of the fundamental principles of irrigation engineering, including the design and construction of reservoirs, dams, flumes, canals, and other irrigation works.

Textbook: Etcheverry's Irrigation Engineering, Vols. I and III.

Prerequisite: C.E. 11, 31, and 51.

59. IRRIGATION STRUCTURES. Second semester. Six hours in drawing room. 2 h.

The design of drops, flumes, dams, and other irrigation structures. This course includes lectures, recitations, problems and designs. Fee, \$1.00.

Prerequisite: C.E. 21, 24, 31, 32, 57, and to be taken with C.E. 58.

60. ENGINEERING CONTRACTS AND SPECIFICATIONS. Second semester. 2 h. For senior students only.

The law of engineering contracts and specifications. Emphasis is placed on the importance of the clear and definite writing of contracts and specifications, and considerable practice is given the student in the preparation of contracts and specifications.

Textbook: Tucker's Contracts in Engineering.

61. C.E. SEMINAR. Second semester. 1 h. For senior students only.

A study is made of technical periodicals and literature.

ELECTRICAL ENGINEERING

PROFESSOR EVANS, ASSISTANT PROFESSORS JENKINS AND DWIGHT, AND
MR. McCORMICK AND MR. RADER:—

1. DIRECT CURRENT MACHINES. First semester. 3 h.

A study of the electric and magnetic circuits of direct current machines and apparatus, with especial emphasis on the mathematical and graphical development of the principles involved in their theory and operation. The work is supplemented by practical problems throughout the course.

Textbook: Franklin and Esty's Elements of Electrical Engineering, Vol. I.

Prerequisite: Phys. 1 to 4, and 5, and to be taken with Phys. 6 and 8.

2. ALTERNATING CURRENT MACHINES. Second semester. 3 h.

A course in the study of simple alternating current circuits and the operation characteristics of alternating current machinery. Methods of measurement of alternating current are also taken up.

Textbook: Franklin and Esty's Elements of Electrical Engineering, Vol. II.

Prerequisite: E.E. 1 and 21, Phys. 6 and 8, and to be taken with E.E. 22.

3. THEORY OF ALTERNATING CURRENTS. First semester. 4 h.

A study of the theory, regulation, and operation of the various types of alternating current apparatus—single-phase and polyphase generators, synchronous and induction motors, rotary converters, transformers, etc.; the solution of alternating current circuits; the use of vectors and the complex quantity.

Textbook: D. C. and J. P. Jackson's Alternating Currents and Alternating Current Machinery.

Prerequisite: E.E. 2.

4. THEORY OF ALTERNATING CURRENTS. Second semester. 2 h.

A continuation of E.E. 3.

Prerequisite: E.E. 3.

5. TELEPHONE ENGINEERING. Second semester. 2 h.

A study of the electrical principles underlying the transmission of speech, the construction and operation of different types of subscribers' station and central office equipment, underground and aerial lines, automatic and wireless systems, telephone and telegraph engineering problems.

Textbook: McMeen and Miller's Telephony, notes and references.

Prerequisite: E.E. 1 and 21, and to be taken with E.E. 4.

6. TRANSMISSION AND DISTRIBUTION. First semester. 2 h.

A study of the principles of direct and alternating current distribution for light and power purposes, methods of installation and regulation, illustrated by practical application to specific problems, alternating current problems in long distance transmission.

Textbook: Dwight's Transmission Line Formulas, notes and references.

Prerequisite: E.E. 2, and to be taken with E.E. 3.

7. ELECTRIC AND MAGNETIC CIRCUITS. First semester. 1 h.

This course is a very elementary course offered to beginning students to introduce fundamental laws and principles as

early as possible. It is largely a problem course familiarizing the student with the laws and principles by drill in concrete examples.

Prerequisite: To be taken with Eng. Math. 4 and Phys. 1 and 3.

8. ILLUMINATION AND PHOTOMETRY. First semester. 2 h.

A study of illuminants with respect to their adaptation to interior and exterior lighting and methods of determining the amount, character, and distribution of their light flux, together with the engineering and economic principles of illumination.

Textbook: Wickenden's Illumination and Photometry, notes and references.

Prerequisite: To be taken with E.E. 1 or 9.

9. ELECTRICAL MACHINERY. First semester. 2 h.

A course, arranged for students who are not specializing in electrical engineering, covering the laws and properties of electric and magnetic circuits; the theory, construction, and operation of direct current machines and apparatus; the solution of practical problems.

Textbook: Gray's Principles and Practice of Electrical Engineering.

Prerequisite: Phys. 1 to 4, and to be taken with C.E. 7.

10. ELECTRICAL MACHINERY. Second semester. 3 h.

A continuation of Course 9, including also a study of the simpler principles of alternating currents and alternating current machinery.

Prerequisite: E.E. 9.

11. PRIMARY AND SECONDARY BATTERIES. 1 h. Elective.

A course devoted primarily to the study of storage batteries, their use, maintenance, and care, and their application to central station work and power distribution.

Prerequisite: E.E. 1 or 9.

12. E.E. SEMINAR. Second semester. 1 h. For senior students only.

A course in the history of electrical engineering and the biography of prominent engineers; also reviews of current electrical literature.

14. **CENTRAL STATION DESIGN.** Second semester. One hour lecture, six hours in drawing room. 3 h.

A course treating of the location and design of electric power plants and substations for public service. Complete drawings and details of cost and construction required. Fee, \$1.00.

Notes and references.

Prerequisite: E.E. 3 and M.E. 35.

16. **ENGINEERING MATERIALS.** Second semester. 2 h.

A study is made of the properties of materials used in engineering construction, the effects of different methods of manufacture upon the quality of material, and specifications and standard tests for materials.

Prerequisite: Eng. Math. 3 and Phys. 1.

17. **ORGANIZATION AND MANAGEMENT.** Second semester. 2 h.

Lectures and assigned reading.

A course dealing with engineering as a business problem, showing the importance of the dollar as a factor in engineering decisions. Fundamental principles studied as to costs, handling of labor and materials, producing a working organization and the engineer in the appraisal of public utilities for rate making, taxation, issue of securities and sale.

Prerequisite: E.E. 1 and to be taken with E.E. 2.

18. **WAVE ANALYSIS.** Second semester. 3 h. Elective.

This is an advanced course in the analysis of the complex waves that appear in alternating current circuits. It begins with a mathematical treatment of waves met in actual practice and leads to a mathematical study of simple transient phenomena. This mathematical treatment of waves and transient phenomena is supplemented by work in the laboratory with the oscillograph.

Prerequisite: Eng. Math. 6, and E.E. 3 and 23.

21. **DIRECT CURRENT LABORATORY.** First semester. Three hours in laboratory. 1 h.

Experimental study of the characteristics of direct current generators and motors, methods of testing, commercial tests, etc. Fee, \$2.00.

Textbook: Wilson's Dynamo Laboratory Outlines, notes and references.

Prerequisite: Phys. 3, 4, and 5, and to be taken with E.E. 1 and Phys. 6 and 8.

22. DIRECT CURRENT LABORATORY. Second semester. Six hours in laboratory. 2 h.

Continuation of Course 21. Fee, \$4.00.

Prerequisite: E.E. 21 and to be taken with E.E. 2.

23. ALTERNATING CURRENT LABORATORY. First semester. Six hours in laboratory. 2 h.

Experimental study of the properties and performance of alternating current generators, motors, transformers, rotary converters, methods of alternating current measurements and commercial tests, including complete operation tests. Fee, \$4.00.

Textbook: Wilson's Dynamo Laboratory Outlines, notes and references.

Prerequisite: To be taken with E.E. 3.

24. ALTERNATING CURRENT LABORATORY. Second semester. Three hours in laboratory. 1 h.

Continuation of Course 23 with some high tension tests and transmission experiments. Fee, \$2.00.

Prerequisite: E.E. 3, 6, and 23, and to be taken with E.E. 4.

25. E.E. LABORATORY. Second semester. Three hours in laboratory. 1 h.

A laboratory course in the testing and operation of direct and alternating current machinery, arranged for students not specializing in electrical engineering. Fee, \$2.00.

Textbook: Wilson's Dynamo Laboratory Outlines, notes and references.

Prerequisite: E.E. 9, and to be taken with E.E. 10.

26. PHOTOMETRY LABORATORY. First semester. Three hours in laboratory. 1 h.

A laboratory course in the determination of the strength and distribution of light of various types of illuminants, practice in the use of different photometers, measurement and representation of illumination. Fee, \$2.00.

Prerequisite: E.E. 8.

27. **EXPERIMENTAL ELECTRICAL ENGINEERING.** Second semester. One hour lecture and assigned reading, six hours in laboratory. 3 h.

Special tests in line with current electrical engineering problems such as insulation tests and high tension phenomena. Some time is also given to the work of the Standardization Laboratory and such special pieces of apparatus as the oscillograph and the artificial transmission line. Original effort on the part of the student is encouraged in the preparation of problems, manner of handling experiments, and in the interpretation of results. Fee, \$1.50.

Prerequisite: E.E. 3 and to be taken with E.E. 4.

31. **ELECTRICAL DESIGN.** First semester. Six hours in drawing room. 2 h.

Lectures, problems, drawing.

Principles of design of direct and alternating current apparatus. Fee, \$1.00.

Prerequisite: E.E. 1 and 2, and to be taken with E.E. 3.

32. **ELECTRICAL DESIGN.** Second semester. Six hours in drawing room. 2 h. Elective.

Continuation of Course 31. Fee, \$1.00.

Prerequisite: E.E. 3, and to be taken with E.E. 4.

35. **TELEPHONE ENGINEERING.** (ADVANCED.) 2 h. Elective.

A course covering the various types of telephone lines and switchboards, methods of testing lines and cables, traffic problems, economics of telephone engineering.

Prerequisite: E.E. 5.

38. **ILLUMINATION AND PHOTOMETRY.** (ADVANCED.) 2 h. Elective.

The calculation of light flux and illumination. The design and comparison of illuminating systems. Practical tests of existing installations.

Prerequisite: E.E. 8.

40. **ELECTRIC RAILWAY ENGINEERING.** First semester. 2 h.

A detailed study of the principles of design and installation of electric railway systems, storage battery installations, distribution systems; surface, overhead and underground railways. Principles and operation of various systems of train control,

manual and automatic block signals and interlocking systems. Both direct and alternating current systems are covered. Some time is also given to the electrification of railroad terminals.

Prerequisite: E.E. 1 and 2, and to be taken with E.E. 3.

41. ELECTRIC RAILWAY ENGINEERING. Second semester. 2 h.

Continuation of E.E. 40.

Prerequisite: E.E. 40.

42. ELECTRIC RAILWAY DESIGN. Second semester. One hour lecture, six hours in drawing room. 3 h.

The design and location of electric power plants and substations for railway service. Complete drawings and details of cost and construction required. Fee, \$1.00.

Prerequisite: E.E. 40 and M.E. 35.

43. DESIGN OF ELECTRIC RAILWAY EQUIPMENT. First semester. Six hours in drawing room. 2 h.

Lectures, problems, drawing.

This course covers the principles of design of the various types of electric railway motors and control apparatus for direct and alternating current systems. Fee, \$1.00.

Prerequisite: E.E. 1 and 2, and to be taken with E.E. 3.

44. ELECTRIC TRACTION. First semester. 2 h.

A preliminary survey of the principles of design and installation of electric railway systems, principles and operation of the various systems of train control, manual and automatic block signals. Direct and alternating current systems are covered.

Textbook: Harding's Electric Railway Engineering.

Prerequisite: E.E. 1 and 2, and to be taken with E.E. 3.

45. RAILWAY SIGNALING. 2 h. Elective.

A course covering the development and present-day practice in signaling, dispatching, and interlocking with some special applications.

Prerequisite: E.E. 40 and 44.

MECHANICAL ENGINEERING

PROFESSOR HUNTER, ASSISTANT PROFESSOR BAUER, AND MR. CHRISTIAN, MR. MALLORY, MR. GRUNDHOEFFER, AND MR. MOYLE:—

1. KINEMATICS. Either semester. 2 h.

A study of the relative motions of machine parts, instant centers, straight line motions, cams, gearing, belting and intermittent motions.

Textbook: Keown's Mechanism.

Prerequisite: Eng. Math. 1 and 2, and to be taken with Phys. 1 and 3.

2. ENGINEERING MATERIALS. First semester. 1 h.

This course is a study of the manufacture, properties and selection of the materials used in engineering construction.

Textbook: Mill's Materials of Construction.

Prerequisite: Eng. Math. 1 and 2, and to be taken with Phys. 1 and 3.

3. ENGINEERING MATERIALS. Second semester. 1 h.

A continuation of M.E. 2.

Prerequisite: M.E. 2.

4. STEAM ENGINES AND BOILERS. First semester. 4 h.

In this course the various types of boilers and engines are studied as well as their construction and operation.

Textbook: Hutton's Mechanical Engineering of Steam Power Plants.

Prerequisite: Phys. 1 to 4.

6. STEAM ENGINES AND BOILERS. Either semester. 2 h.

A course for electrical, civil, and chemical engineering students, covering the design, construction, operation and maintenance of power plant machinery.

Textbook: Allen and Bursley's Heat Engines.

Prerequisite: Phys. 1 to 4.

7. THERMODYNAMICS. Second semester. 3 h.

A brief course in thermodynamics with special reference to the steam engine, the steam turbine and the gas engine.

Prerequisite: M.E. 6, Phys. 6 or C.E. 7.

8. THERMODYNAMICS. Second semester. 2 h.

A study of the mechanical theory of heat, laws of transformation, perfect gases, saturated and superheated vapors, various cycles, heat and refrigeration engines.

Textbook: Ennis' Applied Thermodynamics.

Prerequisite: Phys. 1 to 4, M.E. 4, and Phys. 6, or C.E. 7.

9. THERMODYNAMICS. First semester. 2 h.

A continuation of M.E. 8.

Prerequisite: M.E. 4 and 8.

10. HEATING AND VENTILATION. Second semester. 2 h.

Methods of heating and ventilating are investigated to determine their efficiency and economy. As a part of the course each student is required to design a system of heating for a given building by some standard method, to prepare the necessary specifications and contracts and to make out bills of material.

Textbook: Greene's Heating and Ventilating of Buildings.

Prerequisite: M.E. 1 and 4.

11. LOCOMOTIVES AND AIR BRAKES. Second semester. 2 h.

The mechanics of the locomotive and problems relating to its operation; the engine and valve mechanism, train resistance, rail pressure, slipping, braking, hauling capacity and steam consumption are each discussed with problems.

Textbooks: Henderson's Operations, and McShane's Locomotive, Up to Date.

Prerequisite: M.E. 4 and 32, and C.E. 7 and 8.

12. AUTOMOBILES AND GAS ENGINES. First semester. 2 h.

This course covers the construction and operation of automobiles, gas engines and producer gas plants.

Textbook: Page's The Modern Gasoline Automobile.

Prerequisite: M.E. 8.

13. HYDRAULIC MACHINERY. First semester. 2 h.

This course covers the application of the principles of the dynamics of fluids to the various turbines and other water wheels.

Textbook: Blaine's Hydraulic Machinery.

Prerequisite: C.E. 11, and M.E. 4.

14. **WORKS MANAGEMENT.** First semester. 2 h.

This course covers the economical designs and management of manufacturing property, the capitalization and organization of companies, the organization of labor, the calculation of cost, transmission of power, and sanitation.

Textbook: Ennis' Works Management.

Prerequisite: M.E. 4 and 32.

15. **VALVE GEARS.** First semester. 1 h.

This course covers a theoretical and practical study of valve gears and link motions.

Textbook: Fessenden's Valve Gears.

Prerequisite: M.E. 4.

16. **M.E. SEMINAR.** First semester. 1 h. For senior students only.

A study is made of technical periodicals and literature.

17. **STEAM TURBINES.** Second semester. 3 h.

A study of the design and operation of steam turbines covering the comparison of types, flow of steam and its action on turbine vanes, design of vanes for maximum efficiency, theory of single and multistage turbines, turbine performance, and condensing apparatus.

Textbook: Moyer's Steam Turbines.

Prerequisite: M.E. 8 and 9, or M.E. 6 and 7.

18. **COMPRESSED AIR.** Second semester. 2 h.

A study of air compressors, the transmission of compressed air and its application to pneumatic machinery.

Textbook: Peele's Compressed Air Plant.

Prerequisite: M.E. 8 and 9.

19. **REFRIGERATING MACHINERY.** Second semester. 2 h.

A study is made of cold storage, the manufacture of ice and of refrigerating machinery.

Textbook: MacIntire's Mechanical Refrigeration.

Prerequisite: M.E. 8 and 9.

20. **RAILWAY OPERATION AND SIGNALS.** Second semester. 2 h.

This course covers the operation of trains, handling of freight, and the construction, operation and maintenance of railway signals.

Prerequisite: M.E. 11 and 37.

23. M.E. LABORATORY. Either semester. Three hours in laboratory. 1 h.

Experimental work in calibration of planimeters, water meters and gages; tests of dryness and quality of steam; tests of acidity, specific gravity, chilling and flashing points, and viscosity of oils and other lubricating materials; of impurities in boiler feed water; of flow of air with anemometers and draught gages. Fee, \$2.00.

Textbook: Carpenter and Dietrich's Experimental Engineering is used as a reference.

Prerequisite: M.E. 4, or to be taken with M.E. 6.

24. STEAM ENGINE LABORATORY. First semester. Six hours in laboratory. 2 h.

Tests of boiler flue gases and combustion of fuels, and of efficiency of injectors, engines and boilers; commercial tests of heating and power plants. Fee, \$4.00.

Prerequisite: M.E. 7 or 8, and 23.

25. M.E. LABORATORY. Second semester. Six hours in laboratory. 2 h.

Advanced work in engine testing involving a study of entropy; tests in heating and ventilation. Fee, \$4.00.

Prerequisite: M.E. 9 and 24.

30. MACHINE DRAWING. Either semester. 1 h.

A study of machine elements, such as bolts, screws, keys, couplings and gears. Problems are given requiring simple calculations for strength.

Textbook: Benjamin and Hoffman's Machine Design, supplemented by notes.

Prerequisite: To be taken with M.E. 1.

31. MACHINE DRAWING. Either semester. Six hours in drawing room. 2 h.

This course includes machine sketching and the making of working drawings of simple machine elements designed for strength. Fee, \$1.00.

Textbook: Benjamin and Hoffman's Machine Design, supplemented by notes.

Prerequisite: M.E. 1 and 30, and to be taken with M.E. 3 or E.E. 16.

32. MACHINE DESIGN. First semester. One hour lecture, six hours in drawing room. 3 h.

This course covers advanced problems in kinematics, the design of belting, shafting, bearings and pulleys, and the design of a toggle press, including a set of working drawings and a bill of material. Fee, \$1.00.

Textbook: Benjamin and Hoffman's Machine Design.

Prerequisite: M.E. 3 and 31, C.E. 6, and to be taken with C.E. 7 and 8.

33. MACHINE DESIGN. Second semester. Six hours in drawing room. 2 h.

A continuation of M.E. 32. Fee, \$1.00.

Prerequisite: M.E. 32, C.E. 8, and to be taken with M.E. 34.

34. MECHANICS OF MACHINERY. Second semester. 2 h.

This course covers the application of the principles of theoretical and applied mechanics to such problems in machine design, as transmission of power by belting, ropes and chains; dynamometers; air machinery including fans and blowers; friction in machine parts, and useful applications of friction to clutches and brakes.

Prerequisite: C.E. 8, M.E. 32, and to be taken with M.E. 33.

35. MACHINE DESIGN. Second semester. Six hours in drawing room. 2 h.

This course is similar to M.E. 32 and is arranged for students in electrical and chemical engineering. Fee, \$1.00.

Textbook: Benjamin and Hoffman's Machine Design.

Prerequisite: E.E. 16, M.E. 31, Phys. 5 and 6, or C.E. 6 and 7, and to be taken with C.E. 8.

36. STEAM ENGINE AND BOILER DESIGN. First semester. One hour lecture, nine hours in drawing room. 4 h.

This course covers the design of simple and compound steam engines, and of fire and water tube boilers. Fee, \$1.50.

Prerequisite: M.E. 8, 33, 34, and to be taken with M.E. 9.

37. LOCOMOTIVE DESIGN. First semester. One hour lecture, nine hours in drawing room. 4 h.

This course is similar to M. E. 36 but covers the design of compound locomotive engines and boilers. Fee, \$1.50.

Prerequisite: M.E. 8, 11, 33, 34, and to be taken with M.E. 9.

38. POWER PLANT DESIGN. Second semester. One hour lecture, six hours in drawing room. 3 h.

Each student is required to make a design, with estimates and specifications, of a steam-electric power plant to operate most economically on a given load curve. Fee, \$1.00.

Prerequisite: M.E. 9 and 36.

39. LOCOMOTIVE SHOP AND TERMINAL DESIGN. Second semester. One hour lecture, six hours in drawing room. 3 h.

This course covers the design and equipment of railway shops, round-houses and trackage for the same. Fee, \$1.00.

Prerequisite: M.E. 9, 11, and 37.

40. CHEMICAL ENGINEERING DESIGN. First semester. One hour lecture, six hours in drawing room. 3 h.

This course covers a study of the layout of chemical plants, and the mechanical analysis and design of special classes of machinery used in chemical processes. Fee, \$1.00.

Prerequisite: M.E. 7 and 35, and C.E. 8.

SHOP WORK

1. WOODWORKING. First semester. Six hours in shop. 2 h.

The use of all ordinary woodworking tools in a series of graded exercises, including the use of speed lathe and turning tools. Fee, \$4.00.

2. FORGING. First semester. Six hours in shop. 2 h.

Practical work in the forging and welding of iron and steel, tool dressing, tempering, case hardening and annealing. This course is designed to familiarize the student with the properties and structure of the different irons and steels. Fee, \$4.00.

3. PATTERN MAKING. Second semester. Three hours in shop. 1 h.

Making patterns for iron and brass castings with allowance for draft, shrinkage and finish. Fee, \$2.00.

Prerequisite: Shop 1.

4. FOUNDRY. Second semester. Six hours in shop. 2 h.

Practical work in the making of moulds and cores; the care and operation of the cupola furnace and the brass furnace; mixing of metals; and the study of the properties of alloys. Fee, \$4.00.

5. MACHINE SHOP. First semester. Nine hours in shop. 3 h.

Practical work in the machining of the different grades of iron, steel, bronze and other metals by means of the lathe, planer, milling machine and drill press. Repairs are made on broken machinery and new machines and machine parts are constructed. Fee, \$6.00.

Prerequisite: M.E. 1, 2, and 30.

6. MACHINE SHOP AND FOUNDRY. Second semester. Six hours in shop. 2 h.

This course is for electrical engineering students. The time is divided between machine shop and foundry. Fee, \$4.00.

Prerequisite: M.E. 1, and to be taken with E.E. 16.

GENERAL ENGINEERING DRAWING

ASSISTANT PROFESSOR ALLEN AND MR. MERRILL:—

1. MECHANICAL DRAWING. Either semester. Nine hours in drawing room. 3 h.

Use of instruments, drawing of geometric figures, principles of isometric, cabinet and orthographic projections, making of working drawings, tracing and blue printing. Considerable attention is given to lettering. Fee, \$2.00.

Textbooks: French's Engineering Drawing, and Reinhardt's Lettering.

2. DESCRIPTIVE GEOMETRY. Either semester. One hour lecture, six hours in drawing room. 3 h.

The course covers the orthographic projection of points, lines, planes, curved surfaces, etc., in the four angles of projection, development of surfaces. In order to fix the principles, many geometric problems are solved and also a considerable number of practical applications are worked out. Fee, \$2.00.

Textbook: Smith's Practical Descriptive Geometry.

Prerequisite: Draw. 1.

3. FREE-HAND DRAWING. First semester. Six hours in drawing room. 2 h. Open to students in all departments.

Principles of free-hand perspective, light and shade, practice drawing from models and casts, and assigned reading. Fee, \$2.00.

ENGINEERING MATHEMATICS

ASSISTANT PROFESSOR SPERRY, AND MR. FLACH, MR. MANN, AND
MR. McGRATH:—

1. ALGEBRA. Either semester. 3 h.

A one-semester course covering index laws, algebraic reductions, linear equations, quadratic equations, mathematical induction and the binomial theorem, complex numbers, theorems on roots in theory of equations, logarithms and exponential equations, partial fractions, theorems on limits. A number of graphs are required.

Textbook: Rietz and Crathorne's College Algebra.

2. TRIGONOMETRY. Either semester. 2 h.

A one-semester course covering the right triangle, functions of any angle, radian measure, multiple angles, sum and difference formulas, the oblique triangle, inverse functions and trigonometric equations, the right spherical triangle. A knowledge of logarithms is assumed. Graphs of the trigonometric functions are required.

Textbook: Rothrock's Plane and Spherical Trigonometry.

3. ANALYTICAL GEOMETRY. Either semester. 5 h.

A one-semester course covering the straight line and circle, transcendental equations, polar equations, transformation of coordinates, conic sections and tangents, parametric equations and loci, empirical equations, the plane and straight line in space, the sphere, cylinder, and quadric surfaces, space coordinates. Graphs and constructions drawn according to exact directions are required in plane analytics.

Textbook: Smith and Gale's New Analytic Geometry.

Prerequisite: Eng. Math. 1 and 2.

4. DIFFERENTIAL CALCULUS. Either semester. 5 h.

A one-semester course covering fundamental differentiation, geometrical and physical applications of the derivative, the differential and its applications, simple integration and solution of equation of motion, curvature, the definite integral and its application to areas, volumes and lengths of curves by single integration.

Textbook: Townsend and Goodenough's Essentials of Calculus.

Prerequisite: Eng. Math. 3.

5. INTEGRAL CALCULUS. Either semester. 5 h.

A one-semester course in continuation of Eng. Math. 4 covering mean value and work integrals, the total derivative and differential, the exact and inexact differential, double and triple integration, centroids, movements of inertia, hydraulic pressure and discharge problems for simple cases, Maclaurin's and Taylor's theorems and their application to series and approximate formulas, indeterminate forms. A course in ordinary differential equations through the linear equation of the second order with constant coefficients is given at the close.

Textbook: Townsend and Goodenough's Essentials of Calculus, and Preliminary Course in Differential Equations by C. S. Sperry.

Prerequisite: Eng. Math. 4.

6. DIFFERENTIAL EQUATIONS. Second semester. 2 h.

A one-semester course with engineering and physical applications covering equations of the first order and first and higher degrees, trajectories, linear equations with constant coefficients, the homogeneous linear equation, ordinary equations in more than two variables. Elementary hyperbolic functions are included.

Textbook: Murray's Differential Equations.

Prerequisite: Eng. Math. 4.

7. GEODESY AND LEAST SQUARES. Second semester. Two hours lecture, three hours in field. 3 h.

A course covering the motions of the heavenly bodies, the tides, solar and sidereal time in astronomy, triangulation, base line measurement, the figure of the earth, geodetic levelling, the determination of time, latitude, longitude, and azimuth; the theory of errors and its application to the adjustment of triangulation, base lines, and level circuits. Field observations for time, latitude, and azimuth on sun and stars form part of the work. Fee, \$1.00.

Textbooks: Young's Manual of Astronomy, and Ingram's Geodetic Surveying.

Prerequisite: Eng. Math. 5 and C.E. 2.

ENGINEERING ENGLISH

1. RHETORIC. Either semester. 3 h.

This is a course in composition arranged with special reference to engineering students.

2. RHETORIC. Either semester. 3 h.

This course is a continuation of Course 1.

3. ENGINEERING LITERATURE. Second semester. 2 h.

In this course the student reads and analyzes selections from the best writings in pure science and in engineering. The student is shown the value of clear, concise and accurate diction.

Supplementary Reading. In addition to the reading in this course the student is required to do a prescribed amount of reading during the sophomore and junior years. The list of required books is printed in a supplementary pamphlet.

4. TECHNICAL WRITING. Either semester. 2 h.

This is an advanced course in composition with particular reference to the needs of the individual student. Particular attention is given to the preparation of engineering reports and to technical journalism.

Prerequisite: English 1 and 2, and junior standing in the College of Engineering.

GRADUATE SCHOOL

FACULTY*

- LIVINGSTON FARRAND, A.M., M.D., LL.D., President of the University.
- J. RAYMOND BRACKETT, A.B., 1875, Bates; Ph.D., 1880, Yale. Dean; Professor of Comparative and English Literature.
- IRA M. DELONG, A.B., 1878, A.M., 1881, Simpson College; LL.D., 1914, University of Denver. Professor of Mathematics.
- E. BARBER QUEAL, M.D., 1890, Cincinnati. Professor of Physiology.
- FRED B. R. HELLEMS, A.B., 1893, Toronto; Ph.D., 1898, Chicago; LL.D., 1913, Colorado College. Professor of Latin.
- CHARLES C. AYER, A.B., 1889, Harvard; Ph.D., 1896, Strasburg. Professor of Romance Languages.
- GEORGE NORLIN, A.B., 1893, Hastings College; Ph.D., 1899, Chicago. Professor of Greek.
- †FRANCIS RAMALEY, B.S., 1895, Ph.D., 1899, Minnesota. Professor of Biology.
- MELANCHTHON F. LIBBY, A.B., 1890, Toronto; Ph.D., 1900, Clark. Professor of Philosophy.
- JOHN BERNARD EKELEY, A.B., 1891, A.M., 1893, Colgate; Ph.D., 1902, University of Freiburg in Baden; Sc.D., 1911, Colgate. Professor of Chemistry.
- RUSSELL D. GEORGE, A.B., 1897, A.M., 1898, McMaster. Professor of Geology.
- JOHN D. FLEMING, A.B., 1875, Central University; LL.B., 1879, Louisville; LL.D., 1910, Central University. Charles Inglis Thomson Professor of Law.
- MILO S. KETCHUM, B.S., 1895, C.E., 1900, Illinois. Professor of Civil Engineering.
- EDWARD JACKSON, C.E., 1874, A.M., 1878, Union College; M.D., 1878, Pennsylvania; Sc.D., 1914, Union College. Professor of Ophthalmology.
- HERBERT S. EVANS, B.S., 1898, E.E., 1900, Nebraska. Professor of Electrical Engineering.

* This Faculty is made up of Professors and Instructors of the various Faculties of the University who offer work in the Graduate School.

† On leave of absence, second semester, 1916-1917.

- JOHN A. HUNTER, B.S., 1890, M.E., 1896, Pennsylvania State College. Professor of Mechanical Engineering.
- THEODORE D. A. COCKERELL, Sc.D., 1913, Colorado College. Professor of Zoology.
- GEORGE M. CHADWICK. Professor of Music.
- JAMES F. WILLARD, B.S., 1898, Ph.D., 1902, Pennsylvania. Professor of History.
- OLIVER C. LESTER, A.B., 1897, Central College, Missouri; A.M., 1902, Ph.D., 1904, Yale. Professor of Physics.
- FRANK E. THOMPSON, A.B., 1901, Leland Stanford. Professor of Education.
- ROSS C. WHITMAN, A.B., 1894, M.D., 1899, Michigan. Professor of Pathology.
- JUNIUS HENDERSON, A.B., 1908, Colorado. Professor of Natural History.
- *JOHN S. McLUCAS, A.B., 1893, South Carolina College; A.B., 1895, A.M., 1899, Harvard. Professor of English.
- GRACE VAN SWERINGEN BAUR, B.L., 1893, Cornell; Ph.D., 1904, University of Berlin. Professor of Germanic Languages.
- ALVIN R. PEEBLES, M.D., 1906, Michigan. Professor of Preventive and Experimental Medicine.
- CLOUGH T. BURNETT, M.D., 1908, Michigan. Professor of Bacteriology.
- MILO G. DERHAM, A.B., 1892, Cornell; Ph.D., 1904, Colorado. Professor of Latin.
- LAWRENCE W. COLE, A.B., 1899, Oklahoma; A.M., 1904, Ph.D., 1910, Harvard. Professor of Psychology.
- JAMES C. TODD, Ph.B., 1897, Wooster; M.D., 1900, Pennsylvania. Professor of Clinical Pathology.
- CARON GILLASPIE, M.D., 1905, Colorado. Professor of Anatomy.
- HOMER C. WASHBURN, Ph.C., 1902, B.S. (Phar.), 1904, Michigan. Professor of Pharmacy.
- LORAN D. OSBORN, A.B., 1892, Michigan; Ph.D., 1900, Chicago. Professor of Sociology.
- FREDERICK A. BUSHEE, B.L., 1894, Dartmouth; A.M., 1898, Ph.D., 1902, Harvard. Professor of Economics and Sociology.
- RALPH D. CRAWFORD, A.B., 1905, A.M., 1907, Colorado; Ph.D., 1913, Yale. Professor of Mineralogy and Petrology.

* On leave of absence, 1916-1917.

HARRY A. CURTIS, B.S. (Ch.E.), 1908, A.M., 1910, Colorado; Ph.D., 1914, Wisconsin. Professor of Physical Chemistry.

FRED G. FOLSOM, A.B., 1895, Dartmouth; LL.B., 1899, Colorado. Professor of Law.

WILLIAM R. ARTHUR, A.B., 1899, Washburn; LL.B., 1908, Northwestern. Professor of Law.

CHARLES N. MEADER, A.B., 1906, Colby; M.D., 1910, Harvard. Professor of Medicine.

SCOTT ROWLEY, B.L., 1900, Hiram; LL.B., 1902, Baldwin. Acting Professor of Law.

DAVID R. JENKINS, B.S. (E.E.), 1904, E.E., 1907, Colorado. Assistant Professor of Electrical Engineering.

WALTER W. REED, M.D., 1893, Colorado. Assistant Professor of Obstetrics.

S. ANTOINETTE BIGELOW, A.B., 1893, Wellesley; A.M., 1910, Columbia. Assistant Professor of English Literature.

WILLIAM A. COOK, A.B., 1902, A.M., 1911, Illinois; Ph.D., 1913, Wisconsin. Assistant Professor of Education.

WHITNEY C. HUNTINGTON, B.S. (C.E.), 1910, C.E., 1912, M.S., 1913, Colorado. Assistant Professor of Civil Engineering.

HOWARD E. PHELPS, B.S. (C.E.), 1907, C.E., 1916, Colorado. Assistant Professor of Civil Engineering.

MAX M. ELLIS, A.B., 1907, A.M., 1908, Ph.D., 1911, Indiana; Sc.D., 1914, Vincennes. Assistant Professor of Biology.

CARL C. ECKHARDT, Ph.B., 1902, Ohio State; A.M., 1904, Michigan; Ph.D., 1908, Cornell. Assistant Professor of History.

FRANK S. BAUER, B.S. (M.E.), 1911, Illinois; M.E., 1915, Colorado. Assistant Professor of Mechanical Engineering.

FRANK L. CLAPP, B.S., 1911, Lincoln College; A.M., 1912, Illinois; Ph.D., 1914, Wisconsin. Assistant Professor of Education.

*PHILIP G. WORCESTER, A.B., 1909, A.M., 1911, Colorado. Assistant Professor of Geology.

WILLIAM F. BAUR, Ph.B., 1893, Michigan. Assistant Professor of Germanic Languages.

FRANK G. ALLEN, B.S. (M.E.), 1901, Illinois. Assistant Professor of Engineering Drawing.

CHARLES S. SPERRY, A.B., B.S. (C.E.), 1911, C.E., 1915, Colorado. Assistant Professor of Engineering Mathematics.

*On leave of absence, 1916-1917.

- ARNOLD J. LIEN, A.B., 1908, A.M., 1909, Minnesota; Ph.D., 1913, Columbia. Assistant Professor of Political Science.
- JAY W. WOODROW, A.B., 1907, Drake; A.B., 1910, Oxford; Ph.D., 1913, Yale. Assistant Professor of Physics.
- ROBERT C. LEWIS, Ph.B., 1909, Ph.D., 1912, Yale. Assistant Professor of Physiology and Biochemistry.
- IVAN C. CRAWFORD, B.S. (C.E.), 1912, C.E., 1915, Colorado. Assistant Professor of Civil Engineering.
- HERBERT B. DWIGHT, B.S. (E.E.), 1904, E.E., 1914, Colorado. Assistant Professor of Electrical Engineering.
- WILLIAM MACLEOD RAINE, A.B., 1894, Oberlin. Lecturer on Journalism.
- PAUL M. DEAN, A.B., 1908, A.M., 1911, Colorado; Ph.D., 1916, Illinois. Instructor in Chemistry.
- DONALD MCFAYDEN, A.B., 1896, Toronto; A.M., 1901, Harvard; B.D., 1904, Andover Theological Seminary; Ph.D., 1916, Chicago. Instructor in History.
- LORENA UNDERHILL, Ph.B., 1909, Chicago; A.M., 1912, Colorado. Instructor in Philosophy.
- RUTH M. SHELEDY, A.B., 1910, A.M., 1912, Colorado. Instructor in German.
- CLARIBEL KENDALL, A.B., 1912, A.M., 1914, Colorado. Instructor in Mathematics.
- DOROTHY M. BURTON, A.B., 1914, Colorado. Instructor in English Literature.
- EDNA REYNOLDS, A.B., 1912, A.M., 1913, Colorado. Instructor in Psychology.
- EDWIN B. PLACE, A.B., 1913, A.M., 1916, Colorado. Instructor in Romance Languages.
- GEORGE H. LIGHT, A.B., 1899, A.M., 1900, Princeton; Ph.D., 1916, Yale. Instructor in Mathematics.
- CLIFFORD BANTA, A.B., 1915, Wabash; A.M., 1916, Colorado. Instructor in Chemistry.
- ROBERT M. BURNS, A.B., 1915, A.M., 1916, Colorado. Instructor in Chemistry.
- OLIN INGRAHAM, Ph.B., 1904, Wesleyan; A.M., 1905, Columbia. Instructor in Economics.

GRADUATE COMMITTEE

J. RAYMOND BRACKETT, Dean.

FRANCIS RAMALEY, Secretary.

MILO S. KETCHUM.

MILO G. DERHAM.

ARNOLD J. LIEN.

GENERAL STATEMENT

ADMISSION

A graduate of the University of Colorado will be admitted to the Graduate School upon application, without paying a matriculation fee. A graduate of any college or scientific school of equal rank with the University of Colorado will be admitted upon presentation of a certificate of graduation and payment of the matriculation fee of ten dollars. A student from another institution should first submit his credits to the Registrar for rating.

Only a graduate or a student who has substantially completed the requirements for the bachelor's degree will be enrolled in the Graduate School. A graduate student who elects courses exclusively of undergraduate rank will not be enrolled in the Graduate School.

Admission to the Graduate School will not be taken as equivalent to candidacy for a degree. A graduate student who wishes to become a candidate for a degree must make special application.

A major subject of study should be selected by each graduate student in conference with the Dean of the Graduate School, and the minor subjects in conference with the professor in charge of the major subject.

ADVANCED STANDING AND RESIDENCE

Credit may be given by the Graduate Committee for work done in other universities, but at least one full year of residence at the University of Colorado will be required for each higher degree. For residence requirement in Summer Session, see page 181. Credit will not be granted for work done *in absentia*, except to graduates of the University of Colorado who are candidates for the degree of Engineer. A year's residence means that a student is located at the University not later than the first day of October, and gives his undivided attention to academic work, completing not less than the equivalent of thirty semester hours, that is, fifteen hours of class work for each semester.

RESIDENCE REQUIREMENTS FOR INSTRUCTORS

To satisfy the requirement of one year of residence for the degree Master of Arts, Master of Science, Master of Science in Sani-

tary Engineering, Master of Science in Public Health, and degree of Engineering:

1. A graduate student who is an assistant in the University may satisfy the residence requirement in one year, provided he does not teach more than one-half the regular schedule, and further provided that he obtains graduate credit of not less than six hours each semester and a total credit during the year of not less than eighteen hours.

2. An instructor on full time, or an assistant on more than half time, who is a graduate student, may satisfy the residence requirement of one year in two years, providing he obtains graduate credit of not less than three hours each semester and a total credit during the two years of not less than eighteen hours.

THE DEGREE MASTER OF ARTS

APPLICATION FOR ADMISSION TO CANDIDACY.—A student who has been admitted to the Graduate School, and who wishes to become a candidate for the degree Master of Arts, should make application as soon as practicable, and in any case, not later than thirty days before the end of the first semester. The application for candidacy should include a program of studies leading to the degree, a list of undergraduate studies in the same field, a statement of any original work already accomplished, and an enumeration of honors and degrees. Application blanks will be furnished at the office of the Dean of the Graduate School. An applicant's instructors make recommendations to the Graduate Committee as soon as practicable, and in any case, not later than the end of the first semester; and the Graduate Committee, after consideration of the recommendations, decides upon the application for candidacy, as soon as may be, and in any case, not later than the first week of the second semester.

REQUIREMENTS FOR THE MASTER OF ARTS DEGREE.—The minimum requirement for the degree Master of Arts is one full year devoted to study, equivalent to not less than thirty semester hours, that is, fifteen hours of class work for each semester; the work on the thesis is included in the thirty hours. Studies leading to the degree Master of Arts must be divided between two subjects, known as the major subject and the minor subject. In special cases a second minor subject is permitted. The first minor subject must consist of study equivalent to at least six semester hours

and must lie in a different department from the major subject, but must be approved by the professor in charge of the major subject. A department is understood to mean such a division of studies as is under the charge of a head professor. A thesis, which counts for not less than four nor more than eight semester hours, must be written under the direction of the professor in charge of the major subject, and be finished and submitted for his approval not later than thirty days before the time at which the degree is to be conferred. When the thesis is accepted, printed or typewritten copies bound, to the number of two or more, at the discretion of the major professor, shall be placed in the University Library before the diploma is delivered. Such knowledge of ancient and modern languages as may be deemed necessary by the professor in charge of the major subject is required of a candidate. The written examination of each semester shall be taken upon such studies as are pursued in class, and at the end of the year such additional examination upon other subjects, upon the thesis, and upon the first semester's work, as each instructor may require. If courses have been taken during former years, however, there shall be an examination at the end covering such courses as are not taken in the final year.

ENGINEERING DEGREES

MASTER OF SCIENCE.—A candidate for the degree Master of Science must have previously received the degree B.S. in Engineering from this University; or, if he was graduated elsewhere, he must satisfy the faculty that he possesses equivalent attainments. He must choose a major subject to occupy one-half his time from the graduate courses offered in the line in which he received his bachelor's degree. Study and residence for not less than one year and a thesis on an approved subject are required. A year's work includes thirty hours, of which not less than six hours should be given to the thesis. The thesis in form shall comply with the specifications adopted by the faculty of the College of Engineering for the bachelor's thesis. Two bound copies of the thesis shall be deposited with the University Library before the diploma is conferred. The committee in charge of the work of each candidate shall consist of the major professor and the heads of the departments of Civil, Electrical and Mechanical Engineering.

MASTER OF SCIENCE IN SANITARY ENGINEERING.—A candidate for the degree Master of Science in Sanitary Engineering must have

previously received the degree B.S. in Engineering from this University; or, if he was graduated elsewhere, he must satisfy the faculty that he possesses equivalent attainments. In his previous work he must have included courses in Elementary Bacteriology, Water Supply, Sewerage and Structural Engineering. Study and residence for not less than one year and a thesis on an approved subject are required. A year's work includes thirty hours, of which not less than six hours should be given to the thesis. The thesis in form shall comply with the specifications adopted by the faculty of the College of Engineering for the bachelor's thesis. Two bound copies of the thesis shall be deposited with the University Library before the diploma is conferred.

ENGINEER.—A candidate for the degree Civil Engineer, Electrical Engineer or Mechanical Engineer must have previously received the degree B.S. in Engineering from this University; or if he was graduated elsewhere, he must satisfy the faculty that he possesses equivalent attainments. He must choose major subjects equal to not less than twenty semester hours in the same course as that in which he received his undergraduate engineering degree, and in addition must choose minor subjects not to exceed ten semester hours from the same or other engineering courses. A thesis on a topic to be approved by his major professor is required in addition to the thirty hours' work covered by the major and minor subjects. The thesis shall be equivalent to not less than six semester hours' credit. A further requirement is that the candidate must have had responsible charge of engineering work for at least one year. Residence at the University for at least one year is required of all resident graduate students. The academic work of graduates of this University need not be done in residence. A non-resident candidate must be registered for at least two years before coming up for his degree. The thesis and all work required for the degree must be completed at least one month before the annual commencement at which the candidate expects to receive his degree. The thesis in form shall comply with the specifications adopted by the faculty of the College of Engineering for the bachelor's thesis. Two bound copies of the thesis shall be deposited with the University Library before the diploma is conferred. The candidate shall be approved at the time of registration and the final examination shall be given by a committee composed of the heads of the Civil, Electrical and Mechanical Engineering Departments. The report

of the examining committee is transmitted to the Dean of the Graduate School.

MEDICAL DEGREES

MASTER OF SCIENCE IN PUBLIC HEALTH.—A candidate for the degree Master of Science in Public Health must have received the degree Bachelor of Arts or the degree Doctor of Medicine in an approved institution, must have spent subsequently at least one year in this University in the study of Public Health problems and administration, and must have presented a satisfactory thesis. The course of study must be approved during the first week of the academic year. A specified course is recommended, but this will be altered to meet particular needs.

DOCTOR OF PUBLIC HEALTH.—A candidate for the degree Doctor of Public Health must have spent at least two years in graduate study of Public Health problems and administration, and must have presented a satisfactory thesis. The course of study must be approved during the first week of the academic year. In general, the work of the first year is the same as that required for the degree Master of Science in Public Health. The second year is spent largely in the field in actual Public Health administration and in research upon an approved topic. Advanced standing may be granted to students who have completed in other approved universities work similar to that required here for the first year. The last year of the course must be taken in residence in this University.

DOCTOR OF OPHTHALMOLOGY.—A candidate for the degree Doctor of Ophthalmology must be a graduate of a standard medical school and must have the preliminary education in mathematics and optics. In order to receive the degree D.Oph., he must have done at least three years of graduate work with Ophthalmology as a major subject. One or more courses in Ophthalmology must be completed in the University of Colorado. Each candidate must pass an examination, written, oral, microscopical, and clinical; and must submit an original thesis and stand examination thereon. Six weeks residence in Denver is required.

THE DEGREE DOCTOR OF PHILOSOPHY

APPLICATION FOR ADMISSION TO CANDIDACY.—A student who has been admitted to the Graduate School, and who wishes to become a candidate for the degree Doctor of Philosophy, may make applica-

tion at any time after admission, provided that he shall not apply later than eight months before the time at which he expects to receive the degree. The form of application is the same as for Master of Arts degree.

REQUIREMENTS FOR THE DEGREE DOCTOR OF PHILOSOPHY.—A reading knowledge of both French and German, with special reference to the candidate's field of study, shall be required before admission to candidacy, and upon this requirement the applicant must satisfy a committee consisting of the heads of the French and the German departments and of the professor in charge of the major subject. A knowledge of other languages may also be required, if demanded by the professor in charge of the major subject. The minimum requirement for the degree Doctor of Philosophy is not less than three full years devoted to study, equivalent to not less than sixty semester hours, and to the preparation of a thesis. But the degree shall be granted not for the completion of any specified period of residence or number of hours' study, but for high attainments in general, and marked ability in a special field, including particularly power in original investigation proved by a thesis. Part of the time required may be spent in some other university of approved standing, provided at least one year of two consecutive semesters is spent in the University of Colorado. Studies leading to the degree Doctor of Philosophy must be divided into three groups, known as the major subject, the first minor subject, and the second minor subject. The first minor subject shall consist of the equivalent of at least fifteen semester hours, and the second of eight. Each subject shall be in a different department from the others. A thesis, showing power in original investigation, shall be written upon some subject approved by a committee consisting of the heads of the three departments concerned, and shall be finished and submitted in typewritten form at least sixty days before the time at which the degree is to be conferred, and must be satisfactory to the committee of three above mentioned. When the thesis is accepted, printed or typewritten copies, bound, to the number of three or more at the discretion of the committee, shall be placed in the University Library before the diploma is delivered. The regular written examinations on such subjects as are taken in class may be required at the discretion of each instructor, but, in any case, a preliminary and a final examination are required. The preliminary examination is oral, or oral and written, the oral examination being conducted by

all instructors concerned, in the presence of a committee consisting of the heads of the departments in which the major and minor subjects lie, and is held at least six months before the time at which the degree is to be conferred. The final examination is oral, and is conducted in the presence of a committee consisting of the heads of the departments interested and two other professors appointed by the Dean of the Graduate School, and in the presence of visitors. The report of the examining committee is transmitted to the Dean of the Graduate School.

SUMMER SESSION WORK FOR DEGREE MASTER OF ARTS

RULES AND REQUIREMENTS.—In general, the rules and requirements for the degree Master of Arts in the regular sessions of the University apply to students working toward that degree in the Summer Session, except the rules as to residence, registration, application for candidacy, and examination; the requirements as to residence may be met by attending four full Summer Sessions. A student who intends to enter the Summer Session and who wishes to work toward the degree Master of Arts, should communicate early in the Spring with the resident professor in charge of the major subject, and should consult with the instructor in charge of the major subject in the Summer Session before registering for courses. He should make application for admission to the Graduate School by September following the first Summer Session attended and should make application for candidacy by September preceding the Summer Session in which he intends to finish his required work. A graduate of another university must pay the matriculation fee of ten dollars by the beginning of the second Summer Session; but he shall pay the matriculation fee only once, and shall be exempt from all other fees except the Summer Session fees and the diploma fee. A candidate for the Master's degree takes the regular examinations upon work done in class, together with such supplementary examinations, as his instructors may require, and on completion of the required work, he shall take a final examination covering all courses of study pursued and his thesis. This final examination is oral, or oral and written, the oral examination being conducted in the presence of a committee, two members of which shall be regular professors of the faculty of the University of Colorado.

WORK, PARTLY IN ABSENTIA, FOR DEGREE MASTER OF ARTS

By written consent of the major department concerned, filed with the Dean of the Graduate School, any person eligible to candidacy for a second degree, who has done satisfactory graduate work during one Summer Session of the University (except as noted below), may be admitted to candidacy for a Master's Degree upon the following terms: The candidate must conform to all of the regulations for candidates for the Master's Degree with exception of the requirement of residence for one year. During two or more successive Summer Sessions, in addition to the one above named, the candidate must pursue a course of advanced study arranged and approved by the department of the University in which his major subject is to be taken. During the included two years between the first and third of these Summer Sessions, while not in residence at the University, he must pursue through the Extension Division work in continuation of, or collateral to, this major subject, to the extent of twelve of the thirty hours required for the Master's Degree. The requirement of attendance at a Summer Session before graduate work is permitted under this plan may be waived, with the consent of the departments involved, in the case of alumni of this University or of Extension classes conducted by members of the University faculty. This does not excuse the candidate from residence at the University during at least three Summer Sessions.

ORDER OF DESCRIPTION OF COURSES

Few of the courses outlined below are available in any one year, but each department usually offers one or more every year that may be taken as a minor for the Master's Degree. Courses not scheduled here may be arranged to meet needs of candidates of ability. Students intending to take courses toward the degree Doctor of Philosophy or toward a major for Master of Arts will find advantage in consulting with the Dean and the head of the department concerned as early as the middle of the previous semester.

Biology.

Chemistry.

Civil Engineering.

Education.

Electrical Engineering.

English Language.

Geology, Mineralogy and
Geography.Germanic Languages and
Literatures.

Greek Language and Literature.	Ophthalmology.
History.	Philosophy.
Latin Language and Literature.	Physics.
Law.	Psychology.
Literature, Comparative and English.	Public Health.
Mathematics.	Romance Languages and Literatures.
Mechanical Engineering.	Social Science.
Music.	

DESCRIPTION OF COURSES*

BIOLOGY

I. GENERAL BIOLOGY

PROFESSORS COCKERELL AND RAMALEY, AND ASSISTANT
PROFESSOR ELLIS:—

1-2. PRINCIPLES OF BIOLOGY.

May be applied toward a minor in special cases.

5. HISTORY OF BIOLOGY.

6. PRINCIPLES OF HEREDITY.

7. PLANKTONOLOGY.

8. PUBLIC HEALTH PROBLEMS.

9. TEACHERS' COURSE IN BIOLOGY.

For Graduates Only.

10. SPECIAL PROBLEMS.

Heredity; History of Biology; Biological Pedagogics.

II. BOTANY

PROFESSOR RAMALEY:—

1. GENERAL BOTANY.

Open as a minor.

2. PLANT MORPHOLOGY.

Open as a minor.

5. FOREST BOTANY.

6. PLANT ANATOMY.

7. MYCOLOGY.

8. ECOLOGY AND TAXONOMY.

* Graduate courses that may be elected by undergraduates also are listed under the same numbers as in the College of Liberal Arts, see page 60. Courses for graduates only are described here.

For Graduates Only.

9. SPECIAL PROBLEMS.

Plant Anatomy, Ecology, Agrostology, Floristics.

Research work in Ecology is especially provided at the Summer Mountain Laboratory at Tolland, Colorado. Prospective students should consult the Summer Session announcement and communicate with Professor Francis Ramaley, Boulder, Colorado, who is in charge.

III. ZOOLOGY

PROFESSOR COCKERELL AND ASSISTANT PROFESSOR ELLIS:—

1-2. GENERAL ZOOLOGY.

Open as a minor.

5-6. CYTOLOGY.

8. FIELD ZOOLOGY.

9-10. COMPARATIVE ANATOMY OF VERTEBRATES.

11-12. ICHTHYOLOGY.

13-14. ENTOMOLOGY.

For Graduates Only.

15. SPECIAL PROBLEMS.

Taxonomy of Hymenoptera, Coccidæ (scale insects), Paleontology, Ichthyology, Protozoology, Pond and Stream Zoology, and other topics as opportunity offers:

CHEMISTRY

PROFESSORS EKELEY AND CURTIS, AND MR. POE, DR. DEAN, MR. BANTA, AND MR. BURNS:—

3-4. QUALITATIVE ANALYSIS.

5-6. QUANTITATIVE ANALYSIS.

7. ANALYSIS OF IRON AND STEEL.

8. SANITARY WATER ANALYSIS.

9. MINERAL WATER ANALYSIS.

10. ORE ANALYSIS.

11. GAS ANALYSIS.

12. ORGANIC CHEMISTRY.

Lectures.

14. LABORATORY PRACTICE IN ORGANIC PREPARATIONS.

15. QUALITATIVE ANALYSIS OF ORGANIC COMPOUNDS.

16. FOOD ANALYSIS.
17. PHYSICAL CHEMISTRY.
Lectures.
18. PHYSICAL CHEMISTRY.
Laboratory.
19. ELECTROCHEMICAL ANALYSIS.
- 20-21. ADVANCED ANALYTICAL CHEMISTRY.
22. INDUSTRIAL CHEMISTRY.
23. HISTORY OF CHEMISTRY.
- 24, 25, 26. DRUG ASSAYING.
27. ADVANCED FOOD ANALYSIS.

NOTE—Candidates for the Master's degree, taking chemistry as a major, must have completed courses 1, 2, 3, 4, 5, 6, 10, 12, 14, 17, and 18. Courses from Course 6 on may be counted toward the thirty-hour requirement, in case they have not already been counted toward the bachelor's degree; in such cases, special courses in chemistry may be arranged for.

CIVIL ENGINEERING

PROFESSOR KETCHUM, ASSISTANT PROFESSORS HUNTINGTON, PHELPS,
AND CRAWFORD:—

For Graduates Only.

101. RAILWAY LOCATION AND CONSTRUCTION.
102. YARDS AND TERMINALS.
103. SIGNAL ENGINEERING.
104. RAILWAY OPERATION, MANAGEMENT, AND VALUATION.
105. TUNNELS AND CANALS.
110. ADVANCED BRIDGE DESIGN.
111. SWING AND MOVABLE BRIDGES.
112. METALLIC ARCHES.
113. INDETERMINATE STRUCTURES.
114. STEEL OFFICE BUILDING CONSTRUCTION.
115. STEEL MINE AND MILL STRUCTURES.
120. REINFORCED CONCRETE CONSTRUCTION.
130. GENERAL WATER WORKS CONSTRUCTION AND MANAGEMENT.
131. TANKS, STANDPIPES AND RESERVOIRS.
140. SEWAGE PURIFICATION AND DISPOSAL WORKS.
141. GENERAL SEWERAGE DESIGN AND CONSTRUCTION.
150. IRRIGATION ENGINEERING STRUCTURES.

151. IRRIGATION ENGINEERING STUDIES.
152. DAMS AND RESERVOIRS FOR IRRIGATION.
160. ADVANCED HYDRAULICS.
161. ADVANCED APPLIED MECHANICS.

EDUCATION

PROFESSORS THOMPSON, COLE, AND LIBBY:—

- 2.* COMPARATIVE PSYCHOLOGY.
- 3.* ADVANCED PSYCHOLOGY.
- 4.* PATHOLOGICAL PSYCHOLOGY.
- 5-6.* EXPERIMENTAL PSYCHOLOGY.
- 7.* EDUCATIONAL PSYCHOLOGY.
- 10.* MENTAL TESTS.
7. HISTORY AND PHILOSOPHY OF EDUCATION.
8. HISTORY AND PHILOSOPHY OF MODERN EDUCATION.
9. SECONDARY EDUCATION.
10. ANTHROPOLOGY.
11. ETHNOLOGY.
12. SOCIAL PSYCHOLOGY (PSYCHOLOGY 11).
13. EDUCATION AND SOCIETY.
14. PRACTICUM IN EDUCATION.
15. SEMINAR IN EDUCATION.

For Graduates Only.

- 14.* ADVANCED EXPERIMENTAL PSYCHOLOGY.

ELECTRICAL ENGINEERING

PROFESSOR EVANS, ASSISTANT PROFESSORS JENKINS AND DWIGHT,
AND MR. MCCORMICK:—

For Graduates Only.

101. THEORY OF ALTERNATING CURRENTS.
102. ANALYSIS AND DESIGN OF ALTERNATING CURRENT APPARATUS.
103. ANALYSIS AND DESIGN OF DIRECT CURRENT APPARATUS.
104. SWITCHBOARD DESIGN AND CONSTRUCTION.
105. THE TESTING OF ELECTRICAL MACHINERY.
106. ELECTRICAL ENGINEERING RESEARCH.
107. TELEPHONES AND TELEGRAPH.

* These numbers refer to courses in the Department of Psychology.

108. ELECTRICAL TRANSMISSION OF POWER.
109. ELECTRIC LIGHT AND POWER PLANTS.
110. ELECTRO-METALLURGICAL INDUSTRIES.
111. ADVANCED ELECTRICAL ENGINEERING LABORATORY.
112. ILLUMINATING ENGINEERING.

ENGLISH LANGUAGE

PROFESSOR McLUCAS:—

- 9-10. ANGLO-SAXON.
11. MIDDLE ENGLISH.
12. CHAUCER.
13. SHAKESPEARE.
14. PRE-SHAKESPEREAN DRAMA.

GEOLOGY, MINERALOGY, AND GEOGRAPHY

PROFESSORS GEORGE, HENDERSON, AND CRAWFORD, AND ASSISTANT
PROFESSOR WORCESTER:—

I. GEOLOGY

- 5-6. ECONOMIC GEOLOGY.
- 7-8. ADVANCED GEOLOGY.
- 9-10. GEOLOGY OF COLORADO.
11. GEOLOGIC SURVEYING.
12. GEOLOGIC MATERIALS.
13. GEOLOGY CULTURE COURSE.
- 14-15. PALEONTOLOGY.

For Graduates Only.

- 16-17. RESEARCH GEOLOGY. One or both semesters.

The work will be chiefly individual, and will depend largely on the preparation of the student. The vicinity of Boulder, and the State as a whole, offer a wide range of problems for research. The credit allowed will depend upon the time given to the work and the character of the results obtained.

NOTE—The establishment of the State Geological Survey gives very exceptional opportunities to a limited number of advanced students in geology.

II. MINERALOGY AND PETROLOGY

- 3-4. ADVANCED MINERALOGY.
5. FIRE ASSAYING.
6. ADVANCED CRYSTALLOGRAPHY.
7. OPTICAL MINERALOGY.
8. PETROGRAPHY.

For Graduates Only.

- 9-10. PETROLOGY. Throughout the year. 2 or 3 h. each semester.

An advanced course which includes the microscopic study of rocks from typical districts, reading of petrologic literature, and one weekly period for lectures and reports.

- 11-12. CHEMICAL MINERALOGY. Both semesters.

Either quantitative-analytic mineralogy or the investigation of special problems involving laboratory and library research may be undertaken by students who have had adequate preparation.

III. GEOGRAPHY

3. ADVANCED PHYSIOGRAPHY.

GERMANIC LANGUAGES AND LITERATURES

PROFESSOR VAN SWERINGEN BAUR AND ASSISTANT PROFESSOR BAUR:—

10. THE GERMAN DRAMA OF THE NINETEENTH CENTURY.
11. ADVANCED COMPOSITION.
13. GOETHE'S FAUST: PARTS I AND II.
14. STUDIES IN THE HISTORY OF THE GERMAN NOVEL.
15. THE GERMAN NOVELLE.
18. THE HISTORY OF GERMAN LITERATURE FROM THE EARLIEST TIMES TO THE TIME OF KLOPSTOCK.
19. THE HISTORY OF GERMAN LITERATURE FROM THE TIME OF KLOPSTOCK TO THE PRESENT.
20. GERMANIC HERO-SAGAS.
21. GERMANIC MYTHOLOGY.

For Graduates Only.

22. DEUTSCHE AUFSÄTZE. 2 h.
23. DEUTSCHE PHONETIK UND AUSSPRACHE. 2 h.

24. **GOthic.** One semester. 3 h.

Phonology and inflections of Gothic; relation of Gothic to German and English; reading of extracts in Braune's *Gotische Grammatik*.

25. **OLD HIGH GERMAN.** Two semesters. 3 h.

Braune's *Althochdeutsche Grammatik*, and *Althochdeutsches Lesebuch*.

26. **MIDDLE HIGH GERMAN.** Two semesters. 2 h.

Paul's *Mittelhochdeutsche Grammatik*; reading of Hartman von Aue's *Der arme Heinrich*.

27. **OLD ICELANDIC.** Two semesters. 3 h.

Phonology and inflection of Old Icelandic, from Noreen's *Altisländische and Altnorwegische Grammatik*.

Reading of Heusler's *Zwei Isländer-Geschichten*.

28. **THE EDDA.** Both semesters. 3 h.

Gering's Edition of Hildebrand's *Edda Lieder*.

29. **EINFÜHRUNG IN DAS STUDIUM DER GERMANISCHEN SPRACHEN.** 3 h.

30. **GOETHE SEMINAR.** 2 h.

GREEK LANGUAGE AND LITERATURE

PROFESSORS NORLIN AND HELLEMS:—

8. **PLATO.**

Interpretation of the *Republic* with lectures on Platonism.

9. **COMEDY.**

Aristophanes' *Clouds* and *Frogs*.

10. **GREEK HISTORIANS.**

Herodotus and Thucydides.

11. **PASTORAL POETRY.**

Theocritus, Bion, and Moschus.

12. **LYRIC POETS.**

Early lyric poets with introduction to Pindar and Bacchylides.

13. **ADVANCED PROSE COMPOSITION.**

For Graduates Only.

19. THE TRAGEDIES OF AESCHYLUS.
20. ARISTOTLE'S POETICS.
21. HISTORY OF GREEK COMEDY.
22. INTRODUCTION TO GREEK EPIGRAPHY.
23. STUDY OF GREEK DIALECTS FROM INSCRIPTIONS.
24. SEMINAR IN POETS OF ALEXANDRIAN PERIOD.
25. SEMINAR IN EARLY GREEK PHILOSOPHY.
26. SEMINAR IN GREEK RELIGION AND ETHICS.

HISTORY

PROFESSOR WILLARD, ASSISTANT PROFESSOR ECKHARDT, AND
DR. MCFAYDEN:—

Open to Graduates on Consultation.

13. ATHENIAN DEMOCRACY AND ITS ANCIENT CRITICS.
14. THE FALL OF THE ROMAN REPUBLIC.
15. THE ROMAN EMPIRE.
16. THE EARLY CHURCH.
17. THE MEDIEVAL CHURCH AND THE REFORMATION.
18. ENGLISH MEDIEVAL INSTITUTIONS.
19. THE ITALIAN RENAISSANCE.
20. ENGLISH COLONIAL EXPANSION.
21. ADVANCED MODERN EUROPEAN HISTORY.
22. STUDIES IN GERMAN CIVILIZATION.
23. THE DEVELOPMENT OF THE WEST.
24. AMERICAN HISTORY SINCE 1880.
25. HISTORICAL METHODS AND BIBLIOGRAPHY.

For Graduates Only.

28. SEMINAR IN AMERICAN HISTORY. Throughout the year. 3 h.
29. THE ENGLISH MEDIEVAL BOROUGH. Throughout the year. 3 h.
Seminar on early borough institutions.
30. SEMINAR IN ANCIENT HISTORY. Throughout the year. 2 or 3 h.

LATIN LANGUAGE AND LITERATURE

PROFESSORS HELLEMS AND DERHAM:—

20. LUCRETIVS.
23. MARTIAL.
26. SUETONIUS.

- 28. ADVANCED LATIN PROSE.
- 29. GREEK AND ROMAN ARCHÆOLOGY.
- 30. MINOR LATIN POETS.

A study of the more significant among the minor poets.

For Graduates Only.

- 31. ROMAN LAW.

(1) Gaii Institutiones Juris Civilis. 3 h.

(2) Elements of Roman Law. 2 h.

- 32. ROMAN ADMINISTRATION. 3 h.

The development of Roman public institutions in their historical sequence.

- 33. ROMAN TOPOGRAPHY. 2 h.

The topography of Rome in the historical development of the city.

- 34. INTERPRETATION OF EARLY LATIN. 2 h.

Selected examples of Early Latin.

- 35. EPIGRAPHY. 2 h.

Cagnat's Cours d'Épigraphie Latine; Egbert's Introduction; handling of the Corpus Inscriptionum Latinarum.

- 36. LATIN MORPHOLOGY. 2 h.

The subject will be approached from the comparative side.

- 37. LATIN SYNTAX. 2 h.

The subject will be treated comparatively.

- 38. LATIN PALÆOGRAPHY. 2 h.

An introduction to the subject.

- 39. SEMINAR ON TRAJAN.

A study of the sources for the life and reign of Trajan; particular stress will be laid on the epigraphical side.

- 40. TACITUS. 2 h.

A rapid reading course in the Annals with a consideration of the historical problems raised.

- 41. PERSIUS. 2 h.

Interpretation of the text; Stoicism in the early Empire.

- 42. ROMAN PROVINCIAL ADMINISTRATION.

Pliny, Letters, book X; selections from Cicero's correspondence.

LAW

PROFESSOR FLEMING:—

CONSTITUTIONAL LAW. 5 h.

SALES OF PERSONAL PROPERTY. 3 h.

IRRIGATION. 2 h.

MINING LAW. 3 h.

ACTING PROFESSOR ROWLEY:—

DOMESTIC RELATIONS. 2 h.

BILLS AND NOTES. 3 h.

PRIVATE AND MUNICIPAL CORPORATIONS. 6 h.

PROFESSOR ARTHUR:—

PROPERTY (including Wills). 6 h.

LAW OF CONTRACTS. 6 h.

PROFESSOR FOLSOM:—

PUBLIC SERVICE COMPANIES. 2 h.

LITERATURE, COMPARATIVE AND ENGLISH

PROFESSOR BRACKETT, DEAN BIGELOW, MR. WOLLE, AND MISS BURTON:—

1. ART FORM.
8. THE GREAT DRAMA.
11. WORLD DRAMA.
12. THE GREAT EPICS.
13. MASTERPIECES OF PROSE FICTION.
14. THE SHORT STORY.
15. TENNYSON.
16. BROWNING.
17. SHELLEY.

For Graduates Only.

20. STUDIES IN VICTORIAN LITERATURE AND ART. Throughout the year. 5 h. 1914.
Ruskin and Turner; the Pre-Raphaelite Movement; the Rossettis; Burne-Jones; Holman Hunt; George Frederick Watts; William Morris; Walter Crane.
21. THE PREDECESSORS OF SHAKESPEARE. 5 h.
22. THE RENAISSANCE IN EUROPE. 5 h.
23. THE TEACHING OF LITERATURE.
24. THE HISTORY OF ENGLISH PROSODY. 1917.
25. THE HISTORY OF CRITICISM. 1917.
26. THE RHYTHMS OF ENGLISH PROSE. 1916.

MATHEMATICS

PROFESSOR DELONG, DR. LIGHT, AND MISS KENDALL:—

11. DIFFERENTIAL CALCULUS. As a minor to majors in science.
12. INTEGRAL CALCULUS. As a minor to majors in science.
13. DIFFERENTIAL EQUATIONS.
17. ANALYTIC SOLID GEOMETRY.
18. COMPLEX FUNCTIONS.
21. PROJECTIVE GEOMETRY.
22. ELLIPTIC FUNCTIONS.
23. CONTINUATION COURSES. See page 95.
24. CONTINUATION COURSES. See page 95.

For Graduates Only.

25. HIGHER PLANE CURVES.
26. THEORY OF INVARIANTS.
27. MATHEMATICAL THEORY OF PROBABILITY AND SOME OF ITS APPLICATIONS.
28. DIFFERENTIAL GEOMETRY.
29. DIFFERENTIAL EQUATIONS FOR PHYSICISTS.
30. CALCULUS OF VARIATIONS.
31. CELESTIAL MECHANICS.
32. PERIODIC ORBITS.

MECHANICAL ENGINEERING

PROFESSOR HUNTER AND ASSISTANT PROFESSOR BAUER:—

For Graduates Only.

101. ADVANCED MACHINE DESIGN.
102. GRAPHICS AND KINEMATICS.
103. ADVANCED STEAM ENGINEERING.
104. EXPERIMENTAL ENGINEERING.
105. PNEUMATICS.
106. RAILWAY MECHANICAL ENGINEERING.
107. MECHANICAL REFRIGERATION.
108. ADVANCED GAS ENGINES.

MUSIC

PROFESSOR CHADWICK:—

3. COUNTERPOINT.
4. CANON AND FUGUE.

5. COMPOSITION AND ORCHESTRATION.
6. HISTORY OF MUSIC.
7. AESTHETICS AND PHILOSOPHY OF MUSIC.

OPHTHALMOLOGY

For courses see page 252.

PHILOSOPHY

PROFESSOR LIBBY:—

All candidates must get from the Department of Philosophy a written statement of specific requirements at the beginning of each year. The *thesis-subject* may be chosen from any branch of Philosophy.

For A.M.

For *major* high grades in undergraduate courses and advanced readings in sources of Philosophy, and in Metaphysics; for *minor*, a thorough knowledge of the whole history of Philosophy.

For Ph.D.

For *major*, courses for A.M. *major*, with further advances in history of Philosophy and in special disciplines. Candidate must be able to read German and French at sight. For *minor*, advanced history of Philosophy only, including special knowledge of two philosophers.

PHYSICS

PROFESSOR LESTER, ASSISTANT PROFESSOR WOODROW, DR. RANDOLPH,
AND MR. FINNEY:—

For Graduates and Undergraduates.

5. THEORETICAL MECHANICS—STATICS.
6. THEORETICAL MECHANICS—DYNAMICS.
8. THEORY OF ELECTRICITY AND MAGNETISM.
9. ELECTRICAL MEASUREMENTS.
10. THEORY OF ELECTRICITY—ALTERNATING CURRENTS.
11. PROPERTIES OF MATTER.
12. HEAT AND THERMODYNAMICS.
13. LIGHT. Omitted in 1917-1918.
14. ADVANCED ELECTRICAL MEASUREMENTS. Second semester. Hours and credit to be arranged.
21. INTRODUCTION TO MATHEMATICAL ASTRONOMY.

Primarily for Graduates.

30. KINETIC THEORY OF GASES. Second semester. 2 h.

Lectures and recitations.

The important physical properties of gases will be considered from the viewpoint of the kinetic theory of matter.

Prerequisite: Course 12 and calculus, Course 6 advised.

31. CONDUCTION OF ELECTRICITY THROUGH GASES. Second semester. 3 h. Omitted in 1917-1918.

Lectures and recitations.

A course dealing with the properties of ions and electrons in their relation to the passage of electricity through gaseous media.

Prerequisite: courses 6, 8, 9, and calculus.

32. VECTOR ANALYSIS. Throughout the year. 2 h. Omitted in 1917-1918.

A study of vector analysis as developed by Gibbs with applications to problems of mathematical physics.

Prerequisite: courses 6, 8, and calculus; differential equations advised.

33. ADVANCED ANALYTICAL MECHANICS. Second semester. 3 h.

Prerequisite: courses 5, 6, calculus, and differential equations.

34. ADVANCED MATHEMATICAL PHYSICS. Throughout the year. Hours and credit to be arranged.

A course dealing with certain phases of theoretical physics and involving a somewhat extensive knowledge of physical facts and theories and considerable mathematical equipment.

Prerequisite: permission of the instructor.

35. RADIOACTIVITY. First semester: lectures, 2 hours. Second semester: laboratory work, three to six hours. 2 h.

A study of the radio-elements and the phenomena and theory of atomic disintegration. Laboratory work in detecting and measuring radio-activity.

Prerequisite: courses 1 to 4 inclusive, 8 and calculus.

36. ELECTRON THEORY. Second semester. 3 h.

A course of lectures and reading dealing with the evidence which has led to the idea of the electron, the atomic structure

of electricity and the corpuscular theory of matter; the bearing of the electron theory on the explanation of various physical phenomena.

Prerequisite: permission of the instructor.

37. JOURNAL CLUB. An organization composed of all instructors, graduate, and advanced undergraduate students in the departments of physics and physical chemistry, meeting once a week from 4:30 to 6:00 for the discussion of recent research.

PSYCHOLOGY

PROFESSORS COLE AND THOMPSON:—

2. COMPARATIVE PSYCHOLOGY.
3. ADVANCED PSYCHOLOGY.
4. PATHOLOGICAL PSYCHOLOGY.
- 5-6. EXPERIMENTAL PSYCHOLOGY.
7. EDUCATIONAL PSYCHOLOGY.
8. THE PSYCHOLOGY OF GRAMMAR-SCHOOL AND HIGH-SCHOOL SUBJECTS.
11. SOCIAL PSYCHOLOGY. (EDUCATION 12.)
12. CHILD STUDY.
13. ANATOMY OF THE CENTRAL NERVOUS SYSTEM.

For Graduates Only.

14. ADVANCED EXPERIMENTAL PSYCHOLOGY.

Students in this course will be expected to carry on systematic investigations in special problems.

PUBLIC HEALTH

For courses, see special bulletin on Courses in Public Health.

ROMANCE LANGUAGES AND LITERATURES

PROFESSOR AYER AND MR. PLACE:—

FRENCH

- 7-8. HISTORY OF FRENCH LITERATURE. 4 h.
10. FRENCH SHORT STORIES. 2 h.
11. FRENCH DRAMA. 2 h.
12. FRENCH LITERARY CRITICISM. 2 h.
13. SYNTAX OF THE FRENCH VERB. 2 h.

For Graduates Only.

14. OLD FRENCH WITH COMPARATIVE ROMANCE PHILOLOGY. 2 h.
Cledat's Chrestomathie der Moyen-Age.
15. COMPARATIVE ROMAN SYNTAX ON BASIS OF FRENCH. 2 h.

SPANISH

- 5-6. NINETEENTH CENTURY DRAMA AND NOVEL; SEVENTEENTH CENTURY DRAMA AND NOVEL. 6 h.

For Graduates Only.

7. OLD SPANISH. 2 h.
Comparative Romance Philology with special reference to Spanish; Ford's Old Spanish Readings.

ITALIAN

3. DANTE'S DIVINE COMEDY. 2 h.
4. ALFIERI AND GOLDONI. 2 h.

For Graduates Only.

5. OLD ITALIAN. 2 h.
Comparative Romance Philology, with special reference to Italian. Monaci's Crestomazia Italiana dei primi secoli.

PORTUGUESE

For Graduates Only.

1. GRAUERT'S PORTUGUESE GRAMMAR, with reading from the Boletim da Uniao Pan-Americana. 2 h.
A quick course in grammar with much sight reading.
Prerequisite: French, Spanish, and Italian.

SOCIAL SCIENCE

PROFESSOR BUSHEE, ASSISTANT PROFESSOR LIEN, AND MR. INGRAHAM:—

I. ECONOMICS

5. PRINCIPLES OF ADVERTISING.
6. STATISTICS.
9. LABOR PROBLEMS.
11. MONEY AND BANKING.
12. TRANSPORTATION.
13. CORPORATIONS.

14. TAXATION.
15. LIFE INSURANCE.
17. TRUSTS.
18. BUSINESS ORGANIZATION AND SCIENTIFIC MANAGEMENT.

For Graduates Only.

20. HISTORY AND CRITICISM OF ECONOMIC THEORIES. First semester.
2 h.

Lectures, reading, reports.

The lectures will deal with the economic ideas of Plato and Aristotle; the influence of the Roman Law; the Canonists; Mercantilists; Physiocrats; Adam Smith; Ricardo; Malthus; John Stuart Mill; the Historical School; Jevons and the Austrian School. The aim is not only to study the content of economic theory, but also to exhibit theory in the light of political and social conditions.

21. SEMINAR IN ECONOMICS. Throughout the year. 2 h.

II. SOCIOLOGY

1. PRINCIPLES OF SOCIOLOGY.
2. PROBLEMS IN SOCIOLOGY.
3. SOCIALISM.
5. ADVANCED THEORY OF SOCIOLOGY.

For Graduates Only.

6. SEMINAR IN SOCIOLOGY. Throughout the year. 2 h.

III. POLITICAL SCIENCE

3. COMPARATIVE EUROPEAN GOVERNMENT.
4. MUNICIPAL GOVERNMENT.
5. POLITICAL PARTIES AND PARTY PROBLEMS.
6. CONSULAR AND DIPLOMATIC SERVICE.
7. INTERNATIONAL LAW.
8. MUNICIPAL PROBLEMS.

SCHOOL OF MEDICINE

FACULTY*

LIVINGSTON FARRAND, A.M., M.D., LL.D., President of the University.
CHARLES N. MEADER, A.B., M.D., *Denver*, Dean, Professor of Medicine.
ROSS C. WHITMAN, A.B., M.D., *Boulder*, Secretary, Professor of Pathology.

JAMES R. ARNEILL, A.B., M.D., Professor of Medicine, Emeritus.
SHERMAN G. BONNEY, A.M., M.D., Professor of Medicine, Emeritus.
THOMAS H. HAWKINS, A.M., M.D., LL.D., Professor of Surgery, Emeritus.

WILLIAM C. MITCHELL, M.D., Professor of Bacteriology, Emeritus.
CHARLES A. POWERS, A.M., M.D., Professor of Surgery, Emeritus.
EDMUND J. A. ROGERS, A.M., M.D., Professor of Surgery, Emeritus.
WILLIAM J. ROTHWELL, M.D., Professor of Medicine, Emeritus.
THOMAS E. TAYLOR, A.B., M.D., Professor of Obstetrics, Emeritus.
HERBERT B. WHITNEY, A.B., M.D., Professor of Medicine, Emeritus.
WILLIAM C. BANE, M.D., *Denver*, Professor of Oto-laryngology.
MELVILLE BLACK, M.D., *Denver*, Professor of Ophthalmology.
CLOUGH T. BURNETT, M.D., *Boulder*, Professor of Bacteriology.
T. MITCHELL BURNS, M.D., *Denver*, Professor of Obstetrics.
GEORGE H. CATTERMOLLE, M.D., *Boulder*, Professor of Medicine (Pediatrics).

JOHN CHASE, A.B., M.D., *Denver*, Professor of Ophthalmology and Otology.

SAMUEL B. CHILDS, A.B., M.D., *Denver*, Professor of Roentgenology.
DAVID H. COOVER, M.D., *Denver*, Professor of Ophthalmology.
RICHARD W. CORWIN, M.D., LL.D., *Pueblo*, Professor of Surgery.
WILLIAM B. CRAIG, M.D., *Denver*, Professor of Surgery.
WILLIAM H. DAVIS, M.D., *Denver*, Professor of Dermatology and Genito-Urinary Diseases.

JOHN BERNARD EKELEY, Ph.D., Sc.D., *Boulder*, Professor of Chemistry.

CHARLES S. ELDER, M.D., *Denver*, Professor of Surgery (Gynecology).

* Arranged alphabetically—professors, assistant professors, lecturers, instructors, assistants—without reference to length of service.

- JOHN M. FOSTER, M.D., *Denver*, Professor of Oto-laryngology.
- LEONARD FREEMAN, B.S., A.M., M.D., *Denver*, Professor of Surgery.
- LUMAN M. GIFFIN, M.D., *Boulder*, Professor of Surgery.
- OSCAR M. GILBERT, M.D., *Boulder*, Professor of Medicine (Clinical Medicine).
- CARON GILLASPIE, M.D., *Boulder*, Professor of Anatomy.
- JOSIAH N. HALL, B.S., M.D., *Denver*, Professor of Medicine.
- HORACE G. HARVEY, A.B., M.D., *Denver*, Professor of Surgery.
- EDWARD JACKSON, A.M., M.D., Sc.D., *Denver*, Professor of Ophthalmology.
- WALTER A. JAYNE, M.D., *Denver*, Professor of Surgery (Gynecology and Abdominal Surgery).
- MOSES KLEINER, M.D., *Denver*, Professor of Therapeutics.
- ROBERT LEVY, M.D., *Denver*, Professor of Oto-laryngology.
- CHARLES B. LYMAN, M.D., *Denver*, Professor of Surgery.
- FRANCIS H. McNAUGHT, M.D., *Denver*, Professor of Obstetrics.
- ARTHUR J. MARKLEY, D.D.S., M.D., *Denver*, Professor of Dermatology.
- GEORGE E. NEUHAUS, M.D., *Denver*, Professor of Neurology and Psychiatry.
- GEORGE B. PACKARD, M.D., *Denver*, Professor of Surgery (Orthopedics).
- ALVIN R. PEEBLES, M.D., *Boulder*, Director of the Henry S. Denison Research Laboratory; Professor of Preventive and Experimental Medicine.
- HOWELL T. PERSHING, M.S., M.D., LL.D., *Denver*, Professor of Neurology and Psychiatry.
- JAMES H. PERSHING, A.B., *Denver*, Professor of Medical Jurisprudence.
- E. BARBER QUEAL, M.D., *Boulder*, Professor of Physiology.
- HENRY SEWALL, Ph.D., M.D., Sc.D., *Denver*, Professor of Medicine.
- WILLIAM H. SHARPLEY, M.D., *Denver*, Professor of Medicine (Contagious Diseases).
- CHARLES F. SHOLLENBERGER, M.D., *Denver*, Professor of Medicine (Pediatrics).
- JAMES C. TODD, Ph.B., M.D., *Boulder*, Professor of Clinical Pathology.
- CHARLES B. VAN ZANT, M.D., *Denver*, Professor of Physiology.
- NEWTON WIEST, M.D., *Denver*, Professor of Dermatology.
- FROST C. BUCHTEL, M.D., *Denver*, Assistant Professor of Surgery.
- JACOB CAMPBELL, M.D., *Boulder*, Assistant Professor of Surgery.

EDWARD F. DEAN, M.D., *Denver*, Assistant Professor of Surgery (Clinical Surgery).

ROBERT C. LEWIS, Ph.D., *Boulder*, Assistant Professor of Physiology and Biochemistry.

WALTER W. REED, M.D., *Boulder*, Assistant Professor of Obstetrics.

AUBREY H. WILLIAMS, M.D., *Denver*, Assistant Professor of Surgery (Clinical Surgery).

EDWARD DELEHANTY, M.D., *Denver*, Lecturer on Neurology.

OLIVER LYONS, M.D., *Denver*, Lecturer on Genito-Urinary Diseases.

ALFRED R. SEEBASS, Ph.G., M.D., *Denver*, Lecturer on Life Insurance Examinations.

JOHN W. AMESSE, M.D., *Denver*, Instructor in Medicine.

RUDOLPH W. ARNDT, M.D., *Denver*, Instructor in Medicine.

GLAISTER H. ASHLEY, A.B., M.D., *Boulder*, Instructor in Public Health.

ROBERT L. CHARLES, M.D., *Denver*, Instructor in Anæsthesia.

EDWARD WELLES COLLINS, M.D., *Denver*, Instructor in Oto-laryngology.

CLAUDE EDWARD COOPER, A.B., M.D., *Denver*, Instructor in Oto-laryngology.

HELEN FRANCES CRAIG, B.S., M.D., *Denver*, Instructor in Pathology.

WILLIAM H. CRISP, M.D., D.Oph., *Denver*, Instructor in Ophthalmology.

†CHESTER H. ELLIOTT, M.S., M.D., *Boulder*, Instructor in Histology.

CLAY E. GIFFIN, A.B., M.D., *Boulder*, Instructor in Surgery.

PHILIP HILLKOWITZ, B.S., M.D., *Denver*, Instructor in Pathology.

CLARENCE B. INGRAHAM, Ph.B., M.D., *Denver*, Instructor in Obstetrics.

SAMUEL FOSDICK JONES, M.D., *Denver*, Instructor in Surgery (Orthopedics).

WILLIAM WILEY JONES, A.B., M.D., *Denver*, Instructor in Medicine.

GEORGE P. LINGENFELTER, M.D., *Denver*, Instructor in Dermatology.

TRACY R. LOVE, Ph.B., M.D., *Denver*, Instructor in Medicine.

EDWARD R. MUGRAGE, A.M., M.D., *Denver*, Instructor in Pathology.

CYRUS L. PERSHING, B.S., M.D., *Denver*, Instructor in Neurology.

FRANK R. SPENCER, A.B., M.D., *Boulder*, Instructor in Oto-laryngology.

*EDWARD B. TROVILLION, M.D., *Boulder*, Instructor in Anatomy.

† Resigned, March 1, 1917.

* Died, December 22, 1916.

HENRY WILLIAMS WILCOX, M.D., *Denver*, Instructor in Surgery (Orthopedics).

WALTER L. BACH, *Boulder*, Assistant in Histology.

MAURICE KATZMAN, *Boulder*, Assistant in Pathology.

OTTO S. KRETSCHMER, A.B., *Boulder*, Assistant in Bacteriology.

EVERETT H. MUNRO, *Boulder*, Assistant in Anatomy.

THADDEUS P. SEARS, A.B., *Boulder*, Assistant in Physiology and Biochemistry.

EXECUTIVE COMMITTEE

CHARLES N. MEADER, *Dean*.

OSCAR M. GILBERT.

Term expires January 1, 1918.

ROBERT LEVY, *Chairman*, Dispensary Committee.

Term expires January 1, 1919.

EDWARD JACKSON, *Chairman*, Course Committee.

Term expires January 1, 1920.

WALTER A. JAYNE, *Chairman*, Hospital Committee.

Term expires January 1, 1921.

ROSS C. WHITMAN, *Secretary, ex-officio*, *Boulder*.

HOSPITAL AND DISPENSARY STAFF

MEDICINE

PROFESSORS.

CHARLES N. MEADER.
HENRY SEWALL.

WILLIAM H. SHARPLEY.
CHARLES B. VAN ZANT.

DOCTORS.

RUSSELL T. RAMSEY, Chief.

RUDOLPH W. ARNDT.
MURRAY BARNEY.
AMOS L. BEAGHLER.
BERNARD C. DORSET.
JOHANNA GELIEN.
CLINTON G. HICKEY.
JOHN INGLIS.

WILLIAM WILEY JONES.
FRANK C. KENNELLY.
TRACY R. LOVE.
GEORGE K. OLMSTEAD.
HARRY S. SHAFER.
S. SIMON.
JAMES J. WARING.

PEDIATRICS

PROFESSOR.

GEORGE H. CATTERMOLLE.

DOCTORS.

JOHN W. AMESSE.
WILSON C. BIRKENMAYER.

BERNARD C. DORSET.
FRANK P. GENGEBACH.
LOUIS C. WOLLENWEBER.

NEUROLOGY

PROFESSORS.

GEORGE E. NEUHAUS.

HOWELL T. PERSHING.

DOCTORS.

EDWARD DELEHANTY.
EDWARD W. LAZELL.

GEORGE A. MOLEEN.
RICHARD GILCHREST SMITH.
CYRUS L. PERSHING.

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PROFESSORS.

WILLIAM B. CRAIG.
LEONARD FREEMAN.

CHARLES B. LYMAN.
GEORGE B. PACKARD.

ASSISTANT PROFESSORS.

EDWARD F. DEAN.

AUBREY H. WILLIAMS.

DOCTORS.

ASSISTANT PROFESSOR FROST C. BUCHTEL, Chief.

HASKELL COHEN.
ALEXANDER C. CRAIG.
STANLEY B. EICHBERG.
ORA S. FOWLER.
HAROLD G. GARWOOD.
CASPER F. HEGNER.
S. FOSDICK JONES.

C. G. MCEACHERN.
ROBERT G. PACKARD.
JAMES M. PERKINS.
FRANK ROGERS.
OSCAR M. SHERE.
NATHANIEL A. THOMPSON.
HENRY W. WILCOX.

GYNECOLOGY

PROFESSORS.

CHARLES S. ELDER.

HORACE G. HARVEY.
WALTER A. JAYNE.

DOCTORS.

M. ETHEL V. FRASER.
CLARENCE B. INGRAHAM.
CHARLES JAEGER.

SAMUEL M. OPPENHEIM.
CUTHBERT POWELL.
MARY REED STRATTON.

OBSTETRICS

PROFESSOR.

T. MITCHELL BURNS.

DOCTORS.

PHILLIPS M. CHASE.
HARRY L. CHAMPLIN.
CHARLES A. FERRIS.

CLARENCE B. INGRAHAM.
ARTHUR MCGUGAN.
GEORGE L. MONSON.
FRANK W. STAHL.

OPHTHALMOLOGY

PROFESSORS.

MELVILLE BLACK.

DAVID H. COOVER.

JOHN CHASE.

EDWARD JACKSON.

DOCTORS.

HUGO AUFMWASSER.

JOHN MCCAW.

E. T. BOYD.

DANIEL G. MONAGHAN.

WILLIAM H. CRISP.

WILLIAM A. SEDWICK.

WILLIAM C. FINNOFF.

HIRAM R. STILWILL.

OTO-LARYNGOLOGY

PROFESSORS.

WILLIAM C. BANE.

ROBERT LEVY.

DOCTORS.

WILLIAM M. BANE.

EDWARD WELLES COLLINS.

HARRY L. BAUM.

CLAUDE E. COOPER.

EDGAR F. CONANT.

ORVILLE D. WESCOTT.

DERMATOLOGY AND GENITO-URINARY DISEASES

PROFESSORS.

WILLIAM H. DAVIS.

ARTHUR J. MARKLEY.

NEWTON WIEST.

DOCTORS.

J. B. DAVIS.

OLIVER W. LYONS.

GEORGE P. LINGENFELTER.

W. M. SPITZER.

GENERAL STATEMENT

HISTORICAL NOTE

The University of Colorado School of Medicine was opened in September, 1883. On January 1, 1911, the Denver and Gross College of Medicine was united with this School, the two faculties being combined into one. The single school thus formed is an integral part of the University of Colorado. At the same time the third and fourth-year classes were transferred to Denver, where greatly enlarged clinical facilities are available. The Denver and Gross College of Medicine was the union June 19, 1902, of the Denver College of Medicine, a department of the University of Denver, and the Gross Medical College. The former College was opened November, 1881, and the latter in 1887. The School is a member of the Association of American Medical Colleges.

The first two years constitute the Boulder Division of the School, and the last two years, the Denver Division.

THE HENRY S. DENISON RESEARCH LABORATORIES

The Henry S. Denison Research Laboratories, together with the Denison Memorial Building, are the gift of Mrs. Ella Strong Denison in memory of her son, Dr. Henry S. Denison, who was a member of the Medical Faculty. The west wing of the building is now completed. It contains special rooms and equipment for research and advanced work in chemistry, physiology, pathology, bacteriology, and clinical medicine, together with the necessary accessory rooms, such as library, cold room, incubator room, operating and sterilizing rooms, dark room, etc. To all who have the necessary educational prerequisites, opportunity is here offered for special work and research.

CLINICS

Operative and bedside clinics and clinical conferences are held daily at the Denver City and County Hospital, 400 beds. The Hospital clinics are so arranged that small groups of students have an opportunity to study and observe the cases intimately, under the direction of the proper members of the faculty. The School also maintains a dispensary where daily clinics are attended by small

groups of students in Medicine; Pediatrics; Neurology; Surgery; Gynecology; Orthopedics; Eye; Ear, Nose and Throat; Dermatology and Genito-Urinary Surgery; and the Clinical Laboratory. There are more than 20,000 visits yearly to the Dispensary. In addition to these, clinics are held for small groups of students at St. Joseph's Hospital, 200 beds, and the Contagious (Steele) Hospital. Clinical facilities are also provided at St. Luke's Hospital, 100 beds; St. Anthony's Hospital, 200 beds; Mercy Hospital, 125 beds; and the Children's Hospital.

There is abundant material for teaching obstetrics, each member of the senior class being required to attend a minimum of six cases, in addition to seeing cases delivered by members of the faculty. Students who desire to do so may attend a much larger number of cases.

SESSION OF 1917-1918

The next term begins September 10, 1917.

Applicants for admission are urged to see that their entrance credentials are in the hands of the Registrar on or before September 7, 1917, in order that these may be examined and passed upon in advance of registration.

For further information, address the Registrar, Fred E. Hagen, Boulder.

REQUIREMENTS FOR ADMISSION

See pages 27, 31.

SPECIAL STUDENTS

See page 31.

ADVANCED STANDING

Candidates from a medical college on the accepted list must present to the Registrar of the University at the time of matriculation satisfactory credentials showing that the entrance requirements as given above have been complied with, and that all the work in which advanced credit is sought has been completed. Students from schools rated in grade "B" are admitted only after passing examinations. The School will cooperate in adjusting so far as possible difficulties arising from differences in the arrangement of the curriculum. The responsibility for making these adjustments

rests finally, however, with the student, who is expected to make satisfactory arrangements with the instructors concerned. See also page 27.

COURSES LEADING TO TWO DEGREES

A seven-year course leading to the degrees of A.B. and M.D. is offered. The student pursues the regular work of the College of Liberal Arts for three years and then begins his medical studies. The A.B. degree is conferred upon the completion of the first year of Medicine.

REQUIREMENTS FOR A DEGREE

Every candidate for the degree of Doctor of Medicine must be twenty-one years of age, possess a good moral character, and be of temperate habits. He must have passed satisfactory examinations in all the required studies included in the full course of instruction. He must have attended regularly four full courses of lectures of not less than thirty-two weeks each, in some accredited medical college. No two of such courses shall have been taken in the same year. The last course must be taken in this School. An allowance for absence will be made for no other cause than the illness of the student or of his immediate family, and such absence from any course must not exceed twenty percentum of the scheduled hours. A thesis acceptable to the faculty must be presented before graduation.

FEES

For fees, see pages 34, 36.

DESCRIPTION OF COURSES*

FIRST YEAR (AT BOULDER)

ANATOMY, HISTOLOGY, AND EMBRYOLOGY

Anatomy is taught by means of lectures, recitations, drawings, and demonstrations upon the cadaver. Work in the dissecting room is prosecuted under the personal supervision of the professor and demonstrators of anatomy. Every facility and encouragement is given the student to pursue work in the anatomical room beyond the requirements of the prescribed course. The anatomical material is furnished free.

1. OSTEOLOGY AND DISSECTION. Throughout the year. 344 h.

Dissections, including osteology; laboratory exercises, lectures and recitations.

Professor Gillaspie and Doctor ———

2. ANATOMY OF THE CENTRAL NERVOUS SYSTEM. Second semester. 80 h.

Dissection of the brain and cord, and study of fiber tracts from dissections, charts, and microscopic preparations.

Professor Gillaspie.

3. HISTOLOGY. First semester. 190 h.

Lectures, recitations, and laboratory exercises.

Microscopic anatomy of the various tissues and organs.

Professor Todd and Doctor Elliott.

4. EMBRYOLOGY. First semester. 114 h.

Laboratory exercises, lectures and recitations on the development of the human body, and foetal anatomy.

Professor Gillaspie and Doctor Elliott.

* The hours indicated after each course show the total time devoted to the course.

CHEMISTRY

1. ORGANIC CHEMISTRY.† Second semester. 112 h.

Lectures, accompanied by laboratory exercises in which the student acquires a first hand acquaintance with the compounds discussed in the lectures.

Professor Ekeley and Assistants.

BACTERIOLOGY

1. GENERAL BACTERIOLOGY. Second semester. 144 h.

Lectures, recitations, and laboratory work on the chemistry and biology of bacteria, classification, methods of isolation, culture and staining; phenomena of infection, and cultural characteristics of the pathogenic organisms. Some time is also devoted to the methods of water and milk analysis, and the identification of cultures.

Professor Burnett and Assistant.

PHYSIOLOGY

1. PHYSIOLOGY. Second semester. 64 h.

Lectures and recitations on general and cell physiology, the physiology of nerve and muscle, blood and lymph, circulation, respiration, digestion, absorption, and excretion.

Assistant Professor Lewis.

2. PHYSIOLOGY. Second semester. 120 h.

Laboratory exercises and demonstrations in experimental physiology. Muscle-nerve preparations, circulation, respiration, special senses, internal secretions, hormones, etc.

Assistant Professor Lewis and Assistants.

SECOND YEAR (AT BOULDER)

ANATOMY

1. APPLIED ANATOMY. Second semester. 120 h.

The student is expected to review the histology and the embryology as well as the gross anatomy of the body and thus be better prepared to apply his knowledge in the study of pathology and surgery.

Professor Gillaspie.

† Beginning with the class entering in 1919, this course will be required for admission.

2. ANATOMY OF THE CENTRAL NERVOUS SYSTEM AND SPECIAL SENSE ORGANS. Second semester. 48 h.

Lectures and dissections.

An elective course primarily designed for students of psychology.

Professor Gillaspie.

PHYSIOLOGY

1. PHYSIOLOGY. First semester. 24 h.

Lectures and recitations on the physiology of metabolism, nutrition, heat production and regulation, ductless glands, and reproduction.

Assistant Professor Lewis.

2. PHYSIOLOGY. First semester. 24 h.

Recitations on the central nervous system and special senses.

Professor Queal.

3. BIOCHEMISTRY. First semester. 214 h.

Lectures, recitations, and laboratory exercises on the chemistry of carbohydrates, fats and proteins; of salivary, gastric, pancreatic and intestinal digestion; of bile, putrefaction products, feces; of epithelial, connective, muscular and nervous tissues; of blood, milk, and urine. Considerable time is devoted to practical qualitative and quantitative methods of analysis of urine, milk, stomach contents, and blood, and to practical work in metabolism.

Assistant Professor Lewis and Assistants.

PATHOLOGY

1. GENERAL PATHOLOGY. Throughout the year. 96 h.

Lectures and recitations on the causes, nature, and course of disease processes.

Professor Whitman.

2. LABORATORY COURSE. Second semester. 120 h.

Study of the pathologic histology of disturbances of circulation, the degenerations, inflammation, tissue regeneration, the specific infections, tumors, etc.

Professor Whitman.

HYGIENE

1. **HYGIENE AND PREVENTIVE MEDICINE.** First semester. 64 h.

Recitations based on a standard text on public and personal hygiene, epidemiology, and preventive medicine.

Doctor Ashley.

BACTERIOLOGY

1. **ADVANCED BACTERIOLOGY.** Second semester. Hours as arranged.

An optional course, open to a limited number.

Practice in bacteriologic examination of water, milk, food, soil, air; determination of vital resistance, efficiency of antiseptics; methods of bacteriologic diagnosis of typhoid fever, diphtheria, tuberculosis, etc. To such students as are qualified, special problems are assigned for investigation.

Professor Burnett.

PHARMACOLOGY

1. **PHARMACOLOGY, MATERIA MEDICA, AND TOXICOLOGY.** First semester. 154 h.

A quiz course, accompanied by laboratory exercises, on the physiologic action, toxicology, and therapeutic uses of the most important drugs.

Professor Whitman.

MEDICINE

1. **PRINCIPLES OF MEDICINE.** Second semester. 16 h.

Lectures on the nature of disease processes, the fundamental principles of differential diagnosis, and methods of physical examination.

Professor Cattermole.

2. **NORMAL PHYSICAL DIAGNOSIS.** Second semester. 48 h.

Recitations and laboratory exercises on the technique of auscultation, percussion, and palpation, and recognition of normal physical signs.

Professor Gilbert.

3. **CLINICAL PATHOLOGY.** Second semester. 128 h.

Recitations and laboratory drill on technique and interpretation of the results of clinical examination of sputum, blood, urine, stomach contents, feces, and pathologic secretions and excretions.

Professor Todd.

SURGERY

1. PRINCIPLES OF SURGERY. Second semester. 32 h.

Lectures and recitations on wounds and healing of wounds, infection, inflammation, necrosis, surgical tuberculosis, bandaging, etc.

Professor Giffin and Doctor Giffin.

2. BANDAGING. Second semester. 32 h.

Practical instruction in the application of bandages.

Assistant Professor Campbell.

THIRD YEAR (AT DENVER)

MEDICINE AND THERAPEUTICS

1. QUIZ COURSE. Throughout the year. 160 h.

Recitations on assigned portions of a standard text, covering the subject of internal medicine.

Professor Meader and Doctor Jones.

2. CLINICAL MEDICINE. Throughout the year. 32 h.

A series of clinics at the County Hospital upon patients from the medical wards.

The Medical Staff.

3. PEDIATRICS. First semester. 32 h.

Lectures and recitations on infant feeding and the important diseases of childhood.

Professor Shollenberger and Doctor Gengenbach.

4. CLINICAL THERAPEUTICS. Second semester. 32 h.

Lectures and recitations on the application of the principles of pharmacology to specific therapeutic problems.

Professor Kleiner.

5. PHYSICAL DIAGNOSIS. First or second semester. 32 h.

Practical exercises to small groups of students on the recognition of abnormal signs, with lectures and recitations on their interpretation.

Doctor Arndt.

6. DIAGNOSTIC METHODS. Second semester. 16 h.

Lectures and demonstrations on the newer diagnostic instruments of precision, the interpretation of pulse and respiratory curves, etc.

Professor Sewall.

7. **PATHOLOGICAL PHYSIOLOGY.** First semester. 16 h.

Lectures on perverted action and function of diseased organs.
Professor Van Zant.

8. **ROENTGENOLOGY.** Second semester. 16 h.

Lectures and demonstrations on the diagnostic and therapeutic use of the X-Ray and on the interpretation of skiagrams.
Professor Childs.

9. **CASE TAKING.** Second semester. 32 h.

Practical history taking by small groups of students in the Dispensary.

The Dispensary Staff.

NEUROLOGY1. **PRINCIPLES OF NEUROLOGY.** First semester. 32 h.

Lectures reviewing the anatomy and physiology of the central nervous system, its symptomatology, and neurologic methods.

Professor Neuhaus.

2. **NEUROLOGIC DIAGNOSIS.** First or second semester. 32 h.

Practical exercises for small groups of students in history taking, and physical examination of neurologic patients, and the physiological interpretation of neurologic signs and symptoms. Instruction is also given in the diagnostic and therapeutic use of electricity.

Doctor Pershing.

3. **PATHOLOGICAL PSYCHOLOGY.** Second semester. 16 h.

Lectures on the fundamental laws of psychology as applied to the relation of physician and patient, and to diseased states, psychanalysis, etc.

Professor Neuhaus.

SURGERY1. **MINOR SURGERY.** Throughout the year. 48 h.

Lectures on the surgery of the bones and joints, and the minor surgical operations.

Professor Harvey and Assistant Professors Buchtel and Williams.

2. ORTHOPEDICS. Second semester. 16 h.

Clinical lectures on the more important orthopedic conditions.

Professor Packard and Doctor Jones.

3. GENITO-URINARY SURGERY. First semester. 32 h.

Lectures.

Doctor Lyons.

4. CLINICAL SURGERY. Throughout the year. 32 h.

A series of clinics at the County Hospital on patients from the surgical wards.

The Surgical Staff.

GYNECOLOGY AND OBSTETRICS

1. GYNECOLOGY. First semester. 32 h.

Lectures.

Professor Elder.

2. NORMAL OBSTETRICS. First semester. 48 h.

Lectures on the physiology, diagnosis, and management of normal pregnancy, labor, and the puerperium.

Doctor Ingraham.

3. PATHOLOGICAL OBSTETRICS. Second semester. 32 h.

Lectures on the pathology, diagnosis, and treatment of the complications of pregnancy.

Professor McNaught and Assistant Professor Reed.

4. MANIKIN COURSE. First or second semester. 32 h.

The class is divided into small groups for practical exercises on the manikin, and practice in gynecological and obstetrical diagnosis, accompanied by lectures and recitations.

Doctor Ferris.

OPHTHALMOLOGY

1. OPHTHALMOLOGY. Second semester. 32 h.

Lectures and recitations on errors of refraction and ocular movements, and the common injuries and diseases of the eye.

Professor Jackson.

2. DEMONSTRATION. First or second semester. 11 h.

Demonstrations to small sections of the class on methods of diagnosis, ophthalmoscopy, etc., with lectures and recitations on normal optics.

Professor Jackson and Assistants.

OTO-LARYNGOLOGY

1. OTO-LARYNGOLOGY. Second semester. 32 h.

Lectures on diseases of the ear, nose, and throat.

Professors Bane, Foster, and Levy.

2. DEMONSTRATIONS. First or second semester. 21 h.

The class is divided into small groups for lectures and quizzes on the anatomy and physiology of the ear, nose, and throat, and for practical diagnostic exercises in the use of the otoscope, laryngoscope, rhinoscope, etc.

Professors Bane, Foster, and Levy.

DERMATOLOGY

1. DERMATOLOGY. Second semester. 32 h.

Lectures on the commoner diseases of the skin.

Professor Markley.

PATHOLOGY

1. SPECIAL PATHOLOGY. Throughout the year. 64 h.

Lectures and laboratory demonstrations on pathological conditions and disease processes of the more important organs and organ systems.

Doctor Hillkowitz.

2. IMMUNITY AND SPECIAL PATHOLOGY. Throughout the year. 96 h.

Lectures, recitations, and laboratory demonstrations on the phenomena of immunity, and their application to diagnosis and treatment. The course also includes practical laboratory exercises on tumor diagnosis.

Doctor Mugrage.

MEDICAL JURISPRUDENCE

1. LECTURES. First semester. 32 h.

Professor James H. Pershing.

FOURTH YEAR (AT DENVER)

CLINICAL INSTRUCTION

Clinical instruction is given in three forms, namely, amphitheater clinics, clinical clerkships, and dispensary clinics. Students are given every facility compatible with the welfare of the patient, for direct personal examination of the patient.

GENERAL CLINICS are held from 8:00 to 9:00 at the County Hospital, as follows:

	Hours per Year.
Medicine	48
Surgery	48
Neurology and Psychiatry	32
Specialty Group	32

The hours from 9:00 to 11:00 A. M. and after 3:00 P. M. are assigned to Clinical Clerkships. In this capacity the students are apportioned among the various departments of the County Hospital and carry on their studies of patients under the direct supervision of members of the Visiting Staff.

The hours spent in each department are approximately as follows:

Hours.	Hours.
Medicine 96	Ear, Nose, and Throat..... 19
Surgery 96	Gross Pathology 26
Neurology and Psychiatry... 48	Pediatrics 32
Orthopedics 32	Contagious Diseases 19
Genito-Urinary Diseases 19	Ophthalmology 19
Dermatology 19	Tuberculosis 32
	Obstetrics 48

OBSTETRICS. Each student is required to personally attend a minimum of six cases, and may, if he desires, attend a much larger number.

DISPENSARY CLINICS are conducted in the following departments: Medicine; Pediatrics; Surgery; Neurology; Gynecology; Eye; Ear, Nose and Throat; Dermatology and Genito-Urinary Surgery; and the Clinical Laboratory. The clinics are organized in such a manner as to teach methods of office practice. The class is divided into nine sections. Each section spends one and one-half hours daily for three and one-half weeks in each of the above departments. Selected cases are assigned by the staff to each student for history taking, examination, diagnosis, and treatment, so far as the last may be properly carried out by the student.

The didactic teaching of the fourth year is as follows:

MEDICINE

1. CASE TEACHING. Throughout the year. 32 h.
Professor Gilbert.
2. CASE TEACHING IN PEDIATRICS. Second semester. 16 h.
Professor Cattermole.
3. DIETETICS. First semester. 16 h.
Lectures on physiological and pathological metabolism, with special reference to specific pathological conditions.
Doctor Love.

NEUROLOGY AND PSYCHIATRY

1. NEUROLOGY AND PSYCHIATRY. Throughout the year. 64 h.
Lectures on psychiatry, the psycho-neuroses, and the principles of psycho-therapy; and the organic diseases of the peripheral nerves, spinal cord, and brain.
Professor Pershing and Doctor Delehanty.

SURGERY

1. LECTURES. Throughout the year. 96 h.
Tumors and injuries of the abdomen, surgery of the breast, amputations, surgery of the intestines, liver, spleen, and pancreas, and surgery of the head, neck, and rectum.
Professors Craig, Corwin, Freeman, and Lyman.

SUMMARY OF COURSES FOR 1917-1918

FIRST YEAR:	Lect.	Lab.	Clin.	Tot.
Anatomy	128	296	..	424
Histology and Embryology....	64	240	..	304
Organic Chemistry	64	48	..	112
Physiology	64	120	..	184
Bacteriology	40	104	..	144
	360	808	..	1,168
SECOND YEAR:				
Anatomy	32	88	..	120
Physiology ..	48	..	..	48
Biological Chemistry	64	150	..	214
Pathology	96	120	..	216
Hygiene	64	..	..	64
Pharmacology	64	90	..	154
Surgery	32	..	32	64
Medicine	16	..	..	16
Physical Diagnosis	16	..	32	48
Clinical Pathology	32	96	..	128
	464	544	64	1,072

THIRD YEAR:	Lect.	Lab.	Clin.	Tot.
Dermatology	32	..	..	32
Eye, Ear, Nose and Throat....	64	..	32	96
Genito-Urinary Diseases	32	..	..	32
Gynecology	32	..	..	32
Medical Jurisprudence	32	..	..	32
Medicine	192	..	64	256
Neurology	48	..	32	80
*Obstetrics	80	..	32	112
Orthopedics	16	..	..	16
Pathology	96	64	..	160
Pediatrics	32	..	..	32
Physical Diagnosis .....	..	..	32	32
Roentgenology	16	..	..	16
Surgery	48	..	32	80
Therapeutics	32	..	..	32
	<hr/> 752	<hr/> 64	<hr/> 224	<hr/> 1,040
FOURTH YEAR:				
Dermatology .....	..	..	38	38
Dietetics	16	..	..	16
Ear, Nose and Throat....	..	..	51	51
Genito-Urinary Diseases .....	..	..	38	38
Gynecology .....	..	..	26	26
Medicine	48	..	221	269
Neurology and Psychology....	64	..	106	170
*Obstetrics .....	..	..	48	48
Ophthalmology .....	..	..	51	51
Orthopedics .....	..	..	46	46
Pathology .....	..	..	26	26
Pediatrics	16	..	64	80
Surgery	96	..	170	266
	<hr/> 240	<hr/> ..	<hr/> 885	<hr/> 1,125
RECAPITULATION:				
First year	360	808	..	1,168
Second year	464	544	64	1,072
Third year	752	64	224	1,040
Fourth year	240	..	885	1,125
	<hr/> 1,816	<hr/> 1,416	<hr/> 1,173	<hr/> 4,405

* Does not include time spent in personal conduct of out-patient cases.

UNIVERSITY OF COLORADO HOSPITAL

GENERAL STATEMENT

The University Hospital is situated on ground adjacent to the main campus. It is thoroughly equipped and has recently been enlarged by the addition of quarters for the isolation of cases of infectious disease, by a new wing for convalescent patients and for the open air treatment of disease, by a maternity room and a nursery. In the wards and private rooms there are accommodations for seventy-five patients.

Private patients may employ any reputable physician whom they may elect.

The Hospital is used in caring for students of the University and has been found of great advantage to them when in need of hospital care when away from home.

The Nurses' Home is a frame cottage situated on the Hospital grounds.

HOSPITAL FEES

General wards, \$12 to \$14 a week; private rooms, \$15 to \$25 a week; operating room fee, \$5 to \$15; maternity room and nursery, no extra charge; special nurse, \$25 a week; medicine and dressings at cost.

HOSPITAL BOARD

WALTER W. REED, M.D.

GEORGE H. CATTERMOLLE, M.D.

FRANK R. SPENCER, M.D., Secretary

OSCAR M. GILBERT, M.D.

FRANK H. WOLCOTT

HOSPITAL STAFF

WALTER W. REED, M.D., Superintendent.

MRS. CORA L. CHAMBERLAIN, R.N., Superintendent of Nurses.

AGNES GJELLUM, R.N., Night Supervisor.

JOHN BOUSLOG, A.B., M.D., Externe.

MRS. LUCINDA MARTIN, R.N., Surgical Supervisor.

WALTER L. BACH, Interne and Laboratory Asst.

UNIVERSITY OF COLORADO TRAINING SCHOOL FOR NURSES

FACULTY

LIVINGSTON FARRAND, A.M., M.D., LL.D., President of the University.
CORA L. CHAMBERLAIN, R.N., Superintendent of Nurses, Ethics of Nursing, Practical Nursing, and Hospital Economics.
JACOB CAMPBELL, M.D., Surgery, Surgical Nursing.
GEORGE H. CATTERMOLLE, M.D., Diseases of Children, Infant Feeding, Children's Nursing.
OSCAR M. GILBERT, M.D., Medical Nursing and Hygiene.
E. BARBER QUEAL, M.D., Physiology.
CARBON GILLASPIE, M.D., Anatomy, Histology.
WALTER W. REED, M.D., Gynecology, Obstetric Nursing.
HOMER C. WASHBURN, Ph.C., B.S. (Phar.), Materia Medica.
CLOUGH T. BURNETT, M.D., Bacteriology and Contagious Diseases.
LUCINDA MARTIN, R.N., Practical Nursing, Surgical and Operating Room Technique.
FRANK R. SPENCER, M.D., Eye, Ear, Nose and Throat Nursing.
W. WALTER WASSON, M.D., Urinalysis.
MARTIN E. MILES, M.D., Medical Nursing.
WILLIAM A. JOLLEY, M.D., Major C.N.G., Red Cross and Military Nursing.

GENERAL STATEMENT

The University of Colorado School for Nurses, which has been in successful operation since 1898, offers a thorough course of training to young women who desire to enter the profession of nursing. The course of instruction comprises: practical work in the wards, operating room, maternity room, nursery, laboratories, and diet kitchen; theoretical work in class; lectures, and demonstrations; dietetics; massage, and training school administration.

For admission, a certificate of moral character must be presented from two reliable persons, and a certificate of health from a physician. Evidence of four years' work in a high school, or equivalent, is required. The applicant must not be less than nineteen or more than thirty years of age. Applicants may be admitted at any time when a vacancy exists.

The applicant is received on probation for three months. During this period she receives room, board, and a reasonable amount of laundry service. Upon the completion of the probationary period, if her work has been satisfactory to the Superintendent of Nurses, she is retained as a pupil. Pupils receive \$8.00 per month. This sum is allowed for the uniform, textbooks, and other incidentals, but is not intended as wages. It is considered that the education given fully compensates for services. An annual vacation of two weeks is allowed each pupil.

Lectures begin in September and continue until June. There is the usual intermission in lectures at Christmas.

Every applicant for graduation must have completed the required practical courses, and have passed satisfactory examinations in all the required studies, and have been a regular member of the Training School for three years. For additional information, address the Superintendent of Nurses, University Hospital, Boulder, Colorado.

REQUIREMENTS FOR GRADUATION

FIRST YEAR

FIRST SEMESTER		SECOND SEMESTER	
Practical Nursing and Ethics of	18	Practical Nursing and Ethics of	18
Nursing	18	Nursing	18
Anatomy	18	Anatomy	18
Physiology and Hygiene	18	Physiology and Hygiene	18
Dietetics and Cooking	18	Materia Medica	18

SECOND YEAR

FIRST SEMESTER		SECOND SEMESTER	
Obstetrics	18	Obstetrics	18
Surgical Nursing	18	Surgery	18
Medical Nursing	18	Medical Nursing	18
Pediatrics	18	Urinalysis	6
		Eye, Ear, Nose, and Throat	8

THIRD YEAR

FIRST SEMESTER		SECOND SEMESTER	
Bacteriology	18	Advanced Anatomy	18
Gynecology	18	Nervous and Mental Diseases	3
Contagious Diseases	4	Anaesthesia	—

* The hours indicated after each course show the total time devoted to the course.

SCHOOL OF LAW

FACULTY AND LECTURERS

FACULTY

LIVINGSTON FARRAND, A.M., M.D., LL.D., President of the University.
JOHN D. FLEMING, A.B., LL.B., LL.D., Dean; Charles Inglis Thomson Professor of Law.

*ALBERT A. REED, LL.B., Professor of Law.

FRED G. FOLSOM, A.B., LL.B., Professor of Law.

WILLIAM R. ARTHUR, A.B., LL.B., Professor of Law.

SCOTT ROWLEY, B.L., LL.B., Acting Professor of Law.

LECTURERS

JOHN CAMPBELL, A.M., LL.B., LL.D., Dean, Emeritus; Lecturer on Law of Municipal Corporations.

ROBERT S. MORRISON, Lecturer on Law of Mines and Mining.

JOHN A. RINER, LL.B., Lecturer on International Law.

WILLARD J. WHITE, A.M., M.D., Lecturer on Medical Jurisprudence.

JAMES W. MCCREERY, Lecturer on Law of Irrigation and Water Rights.

JOHN E. ROBINSON, Lecturer on Bankruptcy.

HARRY S. SILVERSTEIN, A.B., Lecturer on Criminal Procedure.

HENRY E. LUTZ, LL.B., Lecturer on Equity Pleading and Practice.

ERWIN LOUIS REGENNITTER, LL.B., Lecturer on Colorado Code of Civil Procedure.

LYMAN P. WELD, LL.B., Lecturer on Conveyancing and Abstracts.

* On leave of absence, 1916-1917.

GENERAL STATEMENT

HISTORY

The School of Law was organized in 1892. The course of study occupied two years until 1898 when it was increased to three years. In 1912 the entrance requirements were advanced to include two years of college work in addition to the high-school education previously prescribed. It has been a member of the Association of American Law Schools since the first annual meeting of the Association in 1901.

BUILDING

The Simon Guggenheim Law Building, erected in 1909, contains lecture and classrooms, professors' rooms, moot and practice court rooms, and rooms for the library. It is the gift of Honorable Simon Guggenheim, formerly United States Senator from Colorado.

THE CHARLES INGLIS THOMSON PROFESSORSHIP

Mrs. Olivia Thomson, lately deceased, has given by will for use of the School of Law the sum of \$75,000, the proceeds of which are used to support, in memory of her husband, a professorship known as "The Charles Inglis Thomson Professorship of Law."

THE LIBRARY

The University Library is open to students of all departments.

The Law Library contains 8,133 volumes embracing many sets of state reports, the National Reporter System, all the reports of the Annotated Series, the digests, including the Century, all the encyclopedias, many original English Reports, the English Reports Full Reprint, digests, and statutes, U. S. departmental reports, and a carefully selected collection of text-books, and is increased each year under special appropriations by the Regents. Most of the leading law journals, American and English, are regularly taken and are on file. The Law Library is under the supervision of an experienced librarian and assistant, and is open to the students from 8:00 A.M. to 10:00 P.M. on week days.

An accession of one thousand volumes, chiefly reports, from the library of the late Judge C. I. Thomson, the gift of his widow, has

been lately made. The volumes are known and catalogued as the "C. I. Thomson Collection."

REQUIREMENTS FOR ADMISSION

See pages 27, 31.

ADVANCED STANDING

Students if otherwise entitled to admission as regular students will be admitted to advanced standing in the second or third year only upon presentation of satisfactory certificates of the completion of equivalent subjects in another law school of equal rank. Such applicants may also in the discretion of the faculty be required to undergo an examination in any or all subjects of the first or second year.

SPECIAL STUDENTS

See page 32.

ACADEMIC YEAR

The Academic Year, 1917-1918, will begin on Monday, September 10, 1917.

FEES

For fees, see pages 34, 36.

DEGREE OF BACHELOR OF LAWS

The degree Bachelor of Laws will be conferred on students who have met the entrance requirements for candidates for the degree and who have satisfactorily completed the three-year curriculum in accordance with the regulations established by the faculty. The time allowance may be proportionally reduced for those who enter with advanced standing, but the candidate for a degree must have pursued at least one year's course as a resident student. No degree will be conferred until the candidate shall have reached the age of twenty-one years.

METHOD OF INSTRUCTION

What is known as the Case-system, or the study of the principles of law as illustrated in judicial opinion, is followed with the view of arriving at such principles by the process of inductive reasoning.

TEACHING PRACTICE

As thorough a course as circumstances will allow in court practice and procedure is deemed an essential part of the curriculum. To supply a knowledge of this, a Practice Court has been provided in which the records and files are kept and the proceedings conducted in conformity with the usage and practice in the courts of Colorado.

It is intended that each student shall participate in the conduct to final judgment of at least two cases in each of the second and third years of his course.

INSTRUCTION IN OTHER DEPARTMENTS OF THE UNIVERSITY

The instruction given in other departments of the University is open also to students of the School of Law, subject to the approval of the Law Faculty. Among the numerous courses, those upon Political Economy, Geology, Mineralogy, History, Oratory and Debate, are particularly recommended for law students. Students intending to take up the study of law are advised to consult with the Dean in regard to their pre-legal courses.

PRIZES

The American Law Book Company of New York City gives annually a prize of a complete set of "Cyc" with its Annual Annotations to the student of the third-year class who attains the highest scholarship honors for the period of his senior year.

Callaghan and Company, Law Publishers, Chicago, give annually a prize of The Cyclopedic Law Dictionary, one volume, to the student of the second-year class who attains the best general average in his studies for the year.

COURSE OF STUDY

It is the purpose of the School to afford such training in the fundamental principles of the English and American law as will thoroughly prepare the student to practice his profession with credit in any state or country where this law prevails.

Every candidate for the degree Bachelor of Laws is required to take all the subjects of the first year, at least thirteen hours a week in each semester of the second year, and at least thirteen hours a week in each semester of the third year. The work of the second and third years must include all subjects preceded by a star in the outline of studies below.

Third-year Property is open as an elective to only such students as have attained an average of 80 per cent in their preceding Property courses.

In addition to the above, all students are required to take the Practice Court work, and such special lectures as are provided.

FIRST YEAR

FIRST SEMESTER

ELEMENTARY LAW. 2 h.

Robinson's Elementary Law (Rev. ed. 1910).

Professor Folsom.

CONTRACTS. 3 h.

Williston's Cases on Contracts, Vols. I and II (1904 ed.).

Professor Arthur.

CRIMINAL LAW AND PROCEDURE. 4 h.

Beale's Cases on Criminal Law (3d ed.).

Acting Professor Rowley.

PROPERTY. 3 h.

Gray's Cases on Property, Vol I (2d ed.).

Professor Arthur.

COMMON LAW PLEADING. 2 h.

Ames' Cases on Pleading (2d ed.); McKelvey on Common Law Pleading.

Professor Folsom.

SECOND SEMESTER

COMMON LAW PLEADING. (CONTINUED.) 2 h.

Professor Folsom.

TORTS. 4 h.

Ames and Smith's Cases on Torts (1909-10 ed.).

Acting Professor Rowley.

CONTRACTS. (CONTINUED.) 3 h.

Professor Arthur.

PROPERTY. 3 h.

Gray's Cases on Property, Vol. II (2d ed.).

Professor Arthur.

AGENCY. 2 h.

Huffcut's Cases on Agency (2d ed.).

Professor Fleming.

SECOND YEAR

FIRST SEMESTER

*EVIDENCE. 4 h.

Thayer's Cases on Evidence (2d ed.).

Professor Folsom.

*CIVIL PROCEDURE UNDER THE CODE. 2 h.

Colorado Code of Procedure and Selected Cases.

Professor Folsom.

DOMESTIC RELATIONS. 2 h.

Woodruff's Cases on Domestic Relations (2d ed.).

Acting Professor Rowley.

PARTNERSHIP. 3 h.

Ames' Cases on Partnership.

Acting Professor Rowley.

*PROPERTY. 3 h.

Gray's Cases on Property, Vol. III (2d ed.).

Professor Arthur.

SALES. 3 h.

Williston's Cases on Sales (2d ed.).

Professor Fleming.

SECOND SEMESTER

***EQUITY JURISDICTION. 5 h.**

Ames' Cases on Equity, Vols. I and II.

Professor Folsom.

CARRIERS. 2 h.

Beale's Cases on Carriers (2d ed.).

Professor Folsom.

***BILLS AND NOTES. 3 h.**

Smith and Moore's Cases on Bills and Notes.

Acting Professor Rowley.

DAMAGES. 2 h.

Beale's Cases on Damages (2d ed.).

Acting Professor Rowley.

***PROPERTY. (WILLS.) 3 h.**

Costigan's Cases on Wills.

Professor Arthur.

INSURANCE. 1 h.

Richards' Cases on Insurance.

Professor Fleming.

THIRD YEAR

FIRST SEMESTER

TRUSTS. 2 h.

Ames' Cases on Trusts (2d ed.).

Professor Folsom.

***PRIVATE CORPORATIONS. 4 h.**

Warren's Cases on Private Corporations (2d ed.).

Acting Professor Rowley.

PROPERTY. 3 h.

Gray's Cases on Property, Vol. V (2d ed.).

Professor Arthur.

***MINES AND MINING. 3 h.**

Costigan's Cases on Mining Law.

Professor Fleming.

***CONSTITUTIONAL LAW. 5 h.**

Hall's Cases on Constitutional Law.

Professor Fleming.

PLEADING AND PRACTICE UNDER THE CODE. 2 h.

This course covers the work in the Practice Court described above.

Professor Folsom.

SECOND SEMESTER

PUBLIC UTILITIES. 2 h.

Wyman's Cases on Public Service Companies (2d ed.).

Professor Folsom.

*APPELLATE PRACTICE. 1 h.

Lectures and Selected Cases.

Professor Folsom.

MUNICIPAL CORPORATIONS. 2 h.

Beale's Cases on Municipal Corporations.

Acting Professor Rowley.

SURETYSHIP AND GUARANTY. 2 h.

Ames' Cases on Suretyship.

Acting Professor Rowley.

PROPERTY. 3 h.

Gray's Cases on Property, Vol. VI (2d ed.).

Professor Arthur.

*IRRIGATION AND WATER RIGHTS. 2 h.

Bingham's Cases on Water Rights; Selected Cases from Arid States.

Professor Fleming.

*CONFLICT OF LAWS. 3 h.

Beale's Shorter Selection of Cases on Conflict of Laws.

Professor Fleming.

*STATUTES. 1 h.

A textual and comparative study of some important Colorado Statutes.

Professor Fleming.

CONVEYANCING AND ABSTRACTS OF TITLE. 1 h.

Drafting exercises, study of selected abstracts, and title searching.

Mr. Weld.

PLEADING AND PRACTICE UNDER THE CODE. (CONTINUED.) 2 h.

Professor Folsom.

COLLEGE OF PHARMACY

FACULTY

LIVINGSTON FARRAND, A.M., M.D., LL.D., President of the University.
HOMER C. WASHBURN, Ph.C., B.S. (Phar.), Dean; Professor of Pharmacy.

*FRANCIS RAMALEY, Ph.D., Professor of Biology.

JOHN BERNARD EKELEY, Ph.D., Sc.D., Professor of Chemistry.

CLOUGH T. BURNETT, M.D., Professor of Bacteriology.

HARRY A. CURTIS, B.S. (Ch.E.), Ph.D., Professor of Physical Chemistry.

CHARLES F. POE, A.M., B.S. (Phar.), Instructor in Chemistry.

PAUL M. DEAN, Ph.D., Instructor in Chemistry.

ARTHUR T. EVANS, A.M., Instructor in Biology.

RUSSELL N. LOOMIS, Ph.C., Assistant in Pharmacy and in Chemistry.

AGNES P. BECHMANN, Ph.C., Assistant in Pharmacy.

* On leave of absence, second semester, 1916-1917.

GENERAL STATEMENT

ORGANIZATION

The Board of Regents in April, 1911, authorized the establishment of a College of Pharmacy, to be a division of the School of Medicine. In June, 1913, the College of Pharmacy was organized as a separate department. It was opened in September, 1911, and from the beginning has maintained a standard of requirements for entrance and graduation equal to the best schools of pharmacy in the country.

FUNCTION

The College offers thorough and practical courses in all the various subjects pertaining to pharmacy, and fits the student to pursue any of the various branches of the profession.

It is the aim of the College to cooperate with the State Board of Pharmacy and the State Pharmaceutical Association in maintaining a high standard in the profession of pharmacy.

The operation of the State and Federal food and drug laws, although but recently enacted, is creating a demand for thoroughly trained pharmacists, drug inspectors, and analysts. While the first of these demands is satisfactorily met by the average pharmaceutical graduate, the others demand a general and technical training that can not be gained short of the four-year course in pharmacy.

The obligation, imposed upon those who manufacture and dispense pharmaceuticals, by an increasing public demand for purer and better drugs and medicines, must result in their employing technically trained assistants for responsible positions which have heretofore, very frequently, been left to irresponsible and incompetent persons.

EQUIPMENT

Ample facilities are provided for carrying on the work in the College of Pharmacy. The work in Bacteriology, Botany, and Chemistry is done in the College of Liberal Arts and in the School of Medicine.

REQUIREMENTS FOR ADMISSION

See pages 27, 32.

FEEES

For fees, see pages 34, 36.

COURSES OF STUDY

The College of Pharmacy offers three courses of study, as follows:

1. A two-year course leading to the degree Graduate in Pharmacy, Ph.G.
2. A three-year course leading to the degree Pharmaceutical Chemist, Ph.C.
3. A four-year course leading to the degree Bachelor of Science in Pharmacy, B.S. (Phar.).

SCHEDULE

In outlining the courses of study, it is the aim of the faculty to adhere, as nearly as may be, to the recommendations of the National Committee representing the Boards and Schools of Pharmacy of the United States, as contained in the Pharmaceutical Syllabus.

THE PH.G. COURSE

FIRST YEAR

FIRST SEMESTER.			SECOND SEMESTER.		
PHARMACY	(Phar. 1)	3	PHARMACY	(Phar. 2a)	2
PHARMACOGNOSY	(Pharma. 1)	3	PHARMACY	(Phar. 2b)	2
BOTANY	(Bot. 1)	3	PHARMACOGNOSY	(Pharma. 2)	2
CHEMISTRY	(Chem. 1)	3	CHEMISTRY	(Chem. 1)	3
CHEMISTRY	(Chem. 2)	2	CHEMISTRY	(Chem. 3)	3
			BOTANY	(Bot. 4)	3
<hr/>			<hr/>		
14			15		

SECOND YEAR

FIRST SEMESTER.			SECOND SEMESTER.		
PHARMACY	(Phar. 3a)	2	PHARMACY	(Phar. 4)	3
PHARMACY	(Phar. 3b)	2	MATERIA MEDICA	(Mat.Med. 2)	2
CHEMISTRY	(Chem. 5)	5	CHEMISTRY	(Chem. 28)	3
CHEMISTRY	(Chem. 12)	4	PHARMACY	(Phar. 5)	2
MATERIA MEDICA	(Mat.Med. 1)	2	PHARMACOGNOSY	(Pharma. 3)	3
			CHEMISTRY	(Chem. 24)	3
<hr/>			<hr/>		
15			16		

THE PH.G. COURSE

FIRST YEAR

Same as first year of Ph.G. Course.

SECOND YEAR

FIRST SEMESTER.		SECOND SEMESTER.	
PHARMACY	(Phar. 3a) 2	PHARMACY	(Phar. 4) 3
PHARMACY*	(Phar. 3b) 2	MATERIA MEDICA	(Mat.Med. 2) 2
CHEMISTRY	(Chem. 5) 4	CHEMISTRY	(Chem. 6) 3
CHEMISTRY	(Chem. 12) 4	PHARMACOGNOSY	(Pharma. 3) 3
MATERIA MEDICA	(Mat.Med. 1) 2	CHEMISTRY	(Chem. 8) 2
MICROCHEMICAL ANALYSIS		CHEMISTRY	(Chem. 24) 3
	(Micr. Chem. 1) 2		
<hr/>		<hr/>	
16		16	

THIRD YEAR

FIRST SEMESTER.		SECOND SEMESTER.	
PHYSICS	(Gen. Phys. 1) 4	PHYSICS	(Gen. Phys. 2) 4
or		or	
LANGUAGE	(Ger., Fr. or Sp.) 5	LANGUAGE	(Ger., Fr. or Sp.) 5
CHEMISTRY	(Chem. 16) 3	CHEMISTRY	(Chem. 14) 3
COLLEGE ALGEBRA AND TRIG.	5	PHARMACY	(Phar. 6) 2
CHEMISTRY	(Chem. 25) 3	BACTERIOLOGY	(Bact. 1) 4
		CHEMISTRY	(Chem. 26) 2
<hr/>		<hr/>	
15 or 16		15 or 16	

THE B.S. (PHAR.) COURSE

The first three years are the same as the Ph.C. Course.

FOURTH YEAR

FIRST SEMESTER.		SECOND SEMESTER.	
LANGUAGE	(Ger., Fr. or Sp.) 5	LANGUAGE	(Ger., Fr. or Sp.) 5
or		or	
PHYSICS	(Gen. Phys. 1) 4	PHYSICS	(Gen. Phys. 2) 4
CHEMISTRY	(Chem. 17) 3	CHEMISTRY	(Chem. 17) 3
CHEMISTRY	(Chem. 18) 2	ENGLISH	3
ENGLISH	3	ELECTIVES	4 or 5
ELECTIVES	4 or 5		
<hr/>		<hr/>	
17		15	

DESCRIPTION OF COURSES

PHARMACY

1. THEORETICAL PHARMACY. First semester. 3 h.
Lectures and recitations.
A study of the principles used in pharmacy, together with a sufficient number of demonstrations to illustrate their application, including pharmaceutical arithmetic.
- 2a. OFFICIAL PHARMACY. Second semester. 2 h.
Recitations.
A study of the drugs and preparations of the United States Pharmacopœia as far as the liniments. Special reference is given to standard requirements, solubilities, tests for purity, assay methods, and dose.
- 2b. PHARMACEUTICAL TECHNIQUE. Second semester. 2 h.
Laboratory.
The student makes several preparations of each pharmaceutical type, as well as a number of non-official preparations, making in all about fifty preparations for the course.
- 3a. CONTINUATION OF COURSE 2a. First semester. 2 h.
Recitations.
The latter half of the United States Pharmacopœia is studied as in Course 2a.
- 3b. CONTINUATION OF COURSE 2b. First semester. 2 h.
Laboratory.
About fifty preparations are made by the student, covering the latter half of the United States Pharmacopœia, together with a number of non-official preparations.
4. DISPENSING PHARMACY. Second semester. 3 h.
A study of the prescription with special reference to physical, chemical and therapeutical incompatibilities. The student is taught to read and write prescriptions correctly. Pharmaceutical Latin is included.
5. COMMERCIAL PHARMACY. Second semester. 2 h.
Lectures and recitations.

6. ADVANCED PHARMACY. Second semester. 2 h.
Laboratory.

An advanced course in pharmaceutical technique in which the student prepares a number of preparations of a more difficult nature requiring more complicated apparatus and chemical synthesis.

MATERIA MEDICA

1. MATERIA MEDICA. First semester. 2 h.
Lectures and recitations.

This course deals with the pharmaco- and therapy-dynamics of the more important drugs, both official and non-official. The drugs are studied under the various therapeutical classes, e.g., antiseptics, cathartics, hæmostatics, etc., and special reference is given to the proper forms for their administration.

2. MATERIA MEDICA. Second semester. 2 h.
Lectures and recitations.
A continuation of Course 1.

PHARMACOGNOSY

1. PHARMACOGNOSY. First semester. 3 h.
Lectures and recitations.

A student of the vegetable and animal drugs with special reference to identification, habitat, methods of collection and preparation for the market, medicinal constituents, official preparations and dose.

2. PHARMACOGNOSY. Second semester. 3 h.
Lectures and recitations.

With Course 1 it covers all the official, vegetable, and animal drugs, as well as the more important non-official drugs.

3. PHARMACOGNOSY. Second semester. 3 h.
Laboratory.

A study of powdered drugs and spices with reference to their purity and adulteration. Special attention is given to the examination of alkaloids and other organic compounds.

BOTANY

1. ELEMENTS OF BOTANY. First semester. 3 h.

Recitations, laboratory, and illustrated lectures.

A general course in botany, dealing especially with the higher plants. Morphology, physiology, and microscopic anatomy are treated, with special attention to such structural features and chemical properties of plants as will best prepare the student for his later study of pharmacognosy.

2. ECONOMIC BOTANY. Second semester. 3 h.

Recitations, laboratory, and illustrated lectures.

A detailed study of the more important plants and plant products of economic value; grains, seeds, nuts, fruits, vegetables, textile fibers, tea, coffee, spices, crude drugs; technical microscopy; origin and improvement of cultivated plants.

BACTERIOLOGY

1. GENERAL BACTERIOLOGY. Second semester. 4 h.

Lectures, recitations, and laboratory work on the chemistry and biology of bacteria, classification, methods of isolation, culture and staining; phenomena of infection, and cultural characteristics of the pathogenic organisms. Some time is also devoted to the methods of water and milk analysis, and the identification of cultures.

CHEMISTRY

1. GENERAL INORGANIC CHEMISTRY. Throughout the year. 11:00.
3 h.

Lectures.

A course of lectures dealing with the laws and theories of chemistry, together with a study of the elements and their most important compounds.

This course is especially designed for those who have not studied chemistry. Those electing Course 1 must also elect Course 2.

2. GENERAL INORGANIC CHEMISTRY. First semester. Tu. Th. 8:00
or 1:00. 2 h.

Laboratory and quiz sections.

A detailed course supplementing Course 1.

3. **QUALITATIVE ANALYSIS.** Second semester. M. W. F. 1:00. 3 h.
A course in the identification and separation of the more common bases and acids.
5. **QUANTITATIVE ANALYSIS.** First semester. M. Th. 11:00; Tu. Th. 1:00. 4 h.
Lectures, recitations, and laboratory.
Elementary gravimetric and volumetric analysis, chemical calculations, etc.
Prerequisite: Course 3.
6. **QUANTITATIVE ANALYSIS.** Second semester. M. W. F. 1:00. 3 h.
This course is a continuation of Course 5.
8. **SANITARY WATER ANALYSIS.** Either semester. Any two periods. 8:00 or 1:00. 2 h.
A course in the chemical and bacteriological examinations of water with regard to its use for drinking purposes.
Prerequisite: Course 5.
12. **ORGANIC CHEMISTRY.** Either semester. 10:00. 4 h.
Lectures.
A study of the methods of preparation and the properties of the more important organic compounds. Special stress is laid upon the theories underlying the subject and the proofs of the constitution of most of the substances studied.
14. **LABORATORY PRACTICE IN ORGANIC PREPARATIONS.** Second semester. M. W. F. 1:00. 3 h.
An advanced course in the preparation of typical aliphatic and aromatic compounds and their analysis.
Prerequisite: Course 12.
16. **FOOD ANALYSIS.** First semester. Any three periods. 8:00 or 1:00. 3 h.
A detailed laboratory course giving practice in the official and standard methods for the analysis of foods and the detection of adulterants.
Prerequisite: Courses 5, 6, 12.
17. **PHYSICAL CHEMISTRY.** Throughout the year. 11:00. 3 h.
Lectures.
A course presenting the conceptions of the modern physico-chemical theories concerning the states of aggregation of mat-

ter, solutions, thermo-chemistry, equilibria, chemical kinetics, electro-chemistry, and actino-chemistry.

18. PHYSICAL CHEMISTRY. First semester. 1:00. 2 h.
Laboratory.

A laboratory course supplementing Course 17, consisting of the determinations of densities, molecular weights, thermo-chemical and optical constants, conductivity of solutions, electromotive force, transference numbers, viscosity, surface tension, electrochemical equivalents, transition points, etc.

24. DRUG ASSAYING: PHARMACOPŒIAL TESTING. Second semester.
Any three periods. 8:00 or 1:00. 3 h.

A laboratory course giving practice in the official and standard methods for the identification, purity, and detection of adulterants, and assaying official drugs.

Prerequisite: Courses 5, 12.

25. DRUG ASSAYING: ORGANIC ANALYSIS. First semester. Any three periods. 8:00 or 1:00. 3 h.

A laboratory course in the qualitative and quantitative analysis of pharmaceutical and commercial organic products such as alcohols, eters, esters, glycerine, soaps, formalin, organic acids, etc. Also the ultimate analysis of organic compounds.

Prerequisite: Courses 5, 6, 12.

26. DRUG ASSAYING: ALKALOIDAL ASSAYING. Second semester. Any two periods. 8:00 or 1:00. 2 h.

Lecture and laboratory course.

A course consisting of all the most important alkaloidal assays and the separation and detection of the alkaloids.

Prerequisite: Courses 5, 6, 12.

27. ADVANCED FOOD ANALYSIS. Second semester. Any three periods. 8:00 or 1:00. 3 h.

An advanced laboratory course in the official and standard methods of food analysis.

Prerequisite: Course 16.

28. SANITARY CHEMISTRY. Second semester. 3 h.

Lectures and laboratory.

A course in the sanitary and bacteriological examination of water for drinking purposes, in the chief methods of food analy-

sis, and in the detection of adulterations. Primarily for Pharmacy students, but may be elected by students in other departments by special permission.

Prerequisite: Courses 5, 12.

MICROSCOPICAL CHEMISTRY

1. MICROCHEMICAL ANALYSIS. First semester. 3 h.

A study of the use of the microscope and its accessories. Practice in the examination and analysis of inorganic substances, with reference to the rapid qualitative methods and the analysis of minute amounts of material.

2. MICROSCOPICAL EXAMINATION OF FOODS. Second semester. 3 h.

The microscopical examination of foods and condiments for the purpose of detecting deterioration, adulteration, and admixture.

Prerequisite: Course 1.

SUMMER SESSION

FACULTY, 1917

LIVINGSTON FARRAND, A.M., M.D., LL.D., President of the University.
MILO G. DERHAM, Ph.D., Director of the Summer Session; Professor
of Latin.

INSTRUCTORS FROM OTHER INSTITUTIONS

CEPHAS D. ALLIN, LL.B., A.M., Associate Professor of Political Science, University of Minnesota.

GEORGE T. AVERY, A.B., Instructor in English, Greeley High School; Psychology.

FLORENCE EUDORA BISHOP, B.L., Director of Art, Public Schools, Fostoria, Ohio.

SUSAN BLAKEY, A.B., B.S., Director of Department of Household Arts, Connecticut State Normal School.

WILLIAM P. BURRIS, A.M., L.H.D., Dean of the College for Teachers and Professor of the History and Principles of Education, University of Cincinnati.

ABRAHAM COHEN, Ph.D., Associate Professor of Mathematics, Johns Hopkins University.

HENRY S. CURTIS, Ph.D., Lecturer on Playgrounds, Public Recreation and Child Welfare.

GIDEON S. DODDS, Ph.D., Assistant Professor of Zoology, University of Missouri.

CHARLES A. ELLWOOD, Ph.D., Professor of Sociology, University of Missouri.

BENJAMIN F. FINKEL, Ph.D., Professor of Mathematics and Physics, Drury College.

HERBERT H. FOSTER, Ph.D., Professor of Education, University of Arizona.

KARL W. GEHRKENS, A.M., Professor of Public School Music, Oberlin College.

LINCOLN R. GIBBS, A.M., Professor of English and English Literature, University of Pittsburgh.

GLADYS GORMAN, A.B., Instructor in Physical Education, Lincoln School, Providence, Rhode Island.

JOHN E. GUBERLET, Ph.D., Professor of Biology, Carroll College.

HARVEY M. HALL, Ph.D., Associate Professor of Economic Botany and Assistant Botanist in the Agricultural Station, University of California.

HAROLD N. HILLEBRAND, Ph.D., Instructor in English, University of Illinois.

RALPH HUBBARD, A.B., Instructor in Nature Study, Cornell University.

EASLEY S. JONES, A.M., Instructor in English, University of Illinois.

BLANCHE LOVETT, Acting Director of the Kindergarten Department, Illinois State Normal University.

WALTER E. MCCOURT, A.M., Professor of Geology, Washington University.

LEWIS E. MEADOR, A.M., Professor of History, Drury College.

THOMAS M. MARSHALL, Ph.D., Associate Professor of History, University of Idaho.

ELIZABETH ROBINSON, A.B., Assistant in Zoology and Entomology, Colorado Agricultural College.

WILLIAM S. ROE, A.M., Principal of the High School, Greeley, Colorado.

EMANUEL D. SCHONBERGER, A.B., M.O., Professor of Public Speaking, Washburn College.

WILSON M. SHAFER, A.B., Superintendent of Schools, Cripple Creek, Colorado.

MARK SKIDMORE, A.M., Assistant Professor of Romance Languages, University of Kansas.

WILLIAM A. WIRTZ, A.M., Litt.D., Dean and Professor of German, Parsons College.

INSTRUCTORS FROM THE UNIVERSITY OF COLORADO

FRED B. R. HELLEMS, Ph.D., LL.D., Dean of the College of Liberal Arts; Professor of Latin.

CHARLES C. AYER, Ph.D., Professor of Romance Languages.

MELANCHTHON F. LIBBY, Ph.D., Professor of Philosophy.

EDWARD JACKSON, A.M., M.D., Sc.D., Professor of Ophthalmology.

THEODORE D. A. COCKERELL, Sc.D., Professor of Zoology.

JAMES F. WILLARD, Ph.D., Professor of History.

OLIVER C. LESTER, Ph.D., Professor of Physics.

FRANK E. THOMPSON, A.B., Director of the College of Education;
Professor of Education.

CLOUGH T. BURNETT, M.D., Professor of Bacteriology.

LAWRENCE W. COLE, Ph.D., Director of the School of Social and Home
Service; Professor of Psychology.

MELVILLE BLACK, M.D., Professor of Ophthalmology.

CARBON GILLASPIE, M.D., Professor of Anatomy.

HARRY A. CURTIS, B.S. (Ch.E.), Ph.D., Professor of Physical Chemis-
try.

C. HENRY SMITH, Ph.B., Librarian; Assistant Professor of Bibliog-
raphy.

CARL C. ECKHARDT, Ph.D., Assistant Professor of History.

FRANK L. CLAPP, Ph.D., Secretary of the Bureau of Public School
Service; Assistant Professor of Education.

WILLIAM F. BAUR, Ph.B., Assistant Professor of Germanic Languages.

FRANK G. ALLEN, B.S. (M.E.), Assistant Professor of Engineering
Drawing.

ARNOLD J. LIEN, Ph.D., Assistant Professor of Political Science.

JAY W. WOODROW, Ph.D., Assistant Professor of Physics.

JAMES N. ASHMORE, Director of Physical Education.

WILLIAM MACLEOD RAINE, A.B., Lecturer on Journalism.

EMILY WOOD EPSTEEN, Acting Dean of Women, Summer Session; Lec-
turer on Story-telling (Extension Division).

CHARLES F. POE, A.M., B.S. (Phar.), Instructor in Chemistry.

PAUL M. DEAN, Ph.D., Instructor in Chemistry.

SAMUEL S. KINGSBURY, Ph.D., Instructor in Education; Instructor in
Latin (Summer Session, 1917).

DONALD MCFAYDEN, B.D., Ph.D., Instructor in History.

RUTH M. SHELEDY, A.M., Instructor in German.

WILLIAM H. CRISP, M.D., D.Oph., Instructor in Ophthalmology.

WALTER F. MALLORY, B.S. (M.E.), Instructor in Mechanical Engineer-
ing.

EDWARD R. MUGRAGE, A.M., M.D., Instructor in Pathology.

MAUD E. CRAIG, A.M., Instructor in Latin.

HUGH C. PRYOR, A.M., Instructor in Education.

CLAIR V. MANN, B.S. (C.E.), Instructor in Engineering Mathematics.

GEORGE H. LIGHT, Ph.D., Instructor in Mathematics.

OSCAR A. RANDOLPH, Ph.D., Instructor in Physics.

BEATRICE BOLAN, Instructor in Physical Education for Women.

E. T. BOYD, M.D., Instructor in Ophthalmology (Summer Session, 1917).

WILLIAM C. FINNOFF, M.D., D.Oph., Instructor in Ophthalmology (Summer Session, 1917).

H. AUFWASSER, M.D., Instructor in Ophthalmology (Summer Session, 1917).

JOHN A. MCCAW, M.D., D.Oph., Instructor in Ophthalmology (Summer Session, 1917).

WILLIAM A. SEDGWICK, M.D., Instructor in Ophthalmology (Summer Session, 1917).

HIRAM R. STILWILL, M.D., Instructor in Ophthalmology (Summer Session, 1917).

ESBON Y. TITUS, A.M., Instructor in Chemistry (Summer Session, 1917).

EDWIN D. HULL, M.S., Assistant in Biology.

NORMAN E. A. HINDS, A.B., Assistant in Geology.

OTTO S. KRETSCHMER, A.B., Assistant in Bacteriology.

GENERAL STATEMENT

PURPOSE AND ORGANIZATION

The Summer Session was established in 1904. The School of Mountain Field Biology at Tolland, Colorado, was opened in 1909. Courses in the Denver Division of the School of Medicine were first offered in 1912.

The Summer Session serves the needs of the following classes of students: (1) teachers and others who are not able to attend during the academic year; (2) regularly matriculated students who desire to supplement the work of the regular session; (3) students whose entrance preparation is deficient; (4) those who wish to review or extend their acquaintance with certain subjects without credit.

ADMISSION AND CREDITS

The courses are open without entrance examinations to all who can profit by them. Non-matriculated students on completion of courses receive certificates showing the amount and grade of the work accomplished. A certain number of college entrance courses are offered to those whose preparation for the University is incomplete. Regularly matriculated students are allowed, for most of the five-hour courses successfully completed, credit for two semester hours of the regular academic year; for certain courses, indicated by a †, Summer Session credit only is given. A certificate showing the amount and grade of work done in such courses is issued to those who desire it. Students who contemplate work toward an advanced degree should write to the Director of the Summer Session not later than June 1. For information regarding requirements for the Master of Arts degree in connection with Summer Session work, see page 181.

RELATION OF THE SUMMER WORK TO THE COLLEGE OF EDUCATION

The Summer Session constituency is largely made up of superintendents, principals, and teachers. In recognition of this fact there are teachers' courses in many departments and other courses conducted with a view to emphasizing educational methods and prin-

ciples. Ample provision is made for those desiring to take work counting toward the twenty hours of professional training prescribed by the Colorado Certification Law.

UNIVERSITY EXTENSION DIVISION

The University Extension Division provides an opportunity to students who cannot attend the University during the regular academic year, to continue work begun in the Summer Session. Announcement of University Extension courses may be obtained from the Registrar of the University.

PUBLIC LECTURES

Open lectures are given every afternoon or evening each week, affording students the opportunity of hearing speakers of eminent attainments in educational, literary, and scientific lines.

ADVANTAGES OF CLIMATE AND SURROUNDINGS

The climate and surroundings of Boulder afford exceptionally favorable conditions for summer study and recreation. The days are never uncomfortably warm; the nights are always cool. The air is dry and invigorating. On every side the scenery is varied, grand, and beautiful.

EXERCISE AND RECREATION; EXCURSIONS

The University gymnasium, the tennis courts and athletic field are open for the use of the students of the Summer Session. The region about Boulder offers abundant opportunities for mountain climbing. There are also conducted excursions each week, for students and faculty, to points of interest.

FEES

The fee for one course is ten dollars; for two or three courses, fifteen dollars; for each course after the third, five dollars; registration fee paid once each session by all students at Boulder, one dollar. Special fees are required for courses in the School of Mountain Field Biology at Tolland, for the Medical Courses in the Boulder Division of the Medical School and for Ophthalmology. In Chemistry the laboratory fee is four dollars for each course taken. Special laboratory fees are required in certain other subjects.

ACCOMMODATIONS

The price for good board near the Campus varies from \$4.00 to \$6.00 a week. Rooms may be obtained for \$2.00 a week. By the formation of boarding clubs or by doing light housekeeping, expenses are materially reduced. The Registrar has a list of desirable boarding and rooming places and will supply information upon application.

REDUCED RAILWAY RATES

The Colorado railways offer a rate of one and one-third fare from Colorado points to Boulder.

Low excursion rates for the summer are given by all the railways from eastern and southern points to Colorado.

Those who wish to take advantage of them are advised to apply to their local agents for official information.

SESSION OF 1917

The Thirteenth Summer Session of the University opens June 25 and closes August 4. It is desirable that students register June 22 or 23. Final examinations are held August 4 for all students who wish credit or certificates for their work.

Courses in Liberal Arts, in Medicine, and in Public Health are offered at Boulder; courses in Mountain Field Biology, at Tolland; courses in Ophthalmology, in the Denver Division of the School of Medicine.

ADDITIONAL INFORMATION

The announcement of the Summer Session will be sent upon request.

COURSES

BACTERIOLOGY

1. GENERAL BACTERIOLOGY.
2. PRACTICAL BACTERIOLOGY.

BIOLOGY

At the University

1. ELEMENTS OF BOTANY.
2. ELEMENTS OF INVERTEBRATE ZOOLOGY.
3. ELEMENTS OF VERTEBRATE ZOOLOGY.
4. ORNITHOLOGY.
5. NATURE STUDY (Laboratory).
6. PRINCIPLES OF BIOLOGY.

See also under Mountain Field Biology (at Tolland).

CHEMISTRY

1. GENERAL INORGANIC CHEMISTRY (Lectures).
2. GENERAL INORGANIC CHEMISTRY (Laboratory).
3. QUALITATIVE ANALYSIS.
4. QUANTITATIVE ANALYSIS.
5. ORE ANALYSIS.
6. ANALYSIS OF IRON AND STEEL.
7. GAS ANALYSIS.
8. ORGANIC CHEMISTRY (Lectures).
9. ORGANIC CHEMISTRY (Laboratory).
- 10-11. PHYSICAL CHEMISTRY (Lectures, Double Course).
12. PHYSICAL CHEMISTRY (Laboratory).
13. TEACHERS' COURSE IN CHEMISTRY.
14. SANITARY WATER ANALYSIS.
15. MINERAL WATER ANALYSIS.
16. LABORATORY PRACTICE IN ORGANIC COMPOUNDS.
17. CHEMISTRY OF FOODS.
18. FOOD ANALYSIS.
19. DRUG ANALYSIS.
20. QUALITATIVE ORGANIC ANALYSIS.
21. RESEARCH COURSE IN CHEMISTRY.

DRAWING

- †1. TEACHERS' COURSE IN PUBLIC SCHOOL ART.
- †2. PICTURE STUDY.
- †3. DESIGN AND APPLIED DESIGN.
- 4. FREEHAND DRAWING.
- 5. MECHANICAL DRAWING.
- 6. DESCRIPTIVE GEOMETRY.

ECONOMICS AND SOCIOLOGY

- 1. PRINCIPLES OF ECONOMICS.
- 2. LABOR PROBLEMS.
- 3. ELEMENTARY SOCIOLOGY.
- 4. NINETEENTH CENTURY ENGLISH REFORMERS.
- 5. SOCIAL PATHOLOGY.
- 6. PSYCHOLOGICAL SOCIOLOGY.

EDUCATION

- 1. PRINCIPLES OF EDUCATION.
- 2. PRINCIPLES OF INSTRUCTION.
- 3. KINDERGARTEN EDUCATION.
- 4. PRIMARY EDUCATION.
- 5. ELEMENTARY EDUCATION.
- 6. SECONDARY EDUCATION.
- 7. CLASSROOM MANAGEMENT.
- 8. PRINCIPLES OF TEACHING.
- 9. PRACTICE TEACHING.
- 10. SCHOOL ADMINISTRATION.
- 11. SCHOOL SURVEYS.
- 12. PRACTICUM IN EDUCATION.
- 13. ANTHROPOLOGY.
- 14. EDUCATION AND SOCIETY.

Teachers' Courses in various departments.

See also under Philosophy and Psychology.

ENGLISH LANGUAGE AND LITERATURE

- 1. COMPOSITION.
- 2. ADVANCED COMPOSITION.
- 3. AMERICAN LITERATURE.
- 4. TEACHERS' COURSE IN ENGLISH.

5. SHAKESPEARE.
6. ENGLISH DRAMA, 1600 to 1700.
7. ELIZABETHAN NON-DRAMATIC LITERATURE.
8. CARLYLE AND RUSKIN.
9. CONTEMPORARY DRAMA.

See also under Journalism, Latin and Greek, and Reading and Public Speaking.

GEOLOGY AND GEOGRAPHY

1. PRINCIPLES OF EARTH SCIENCE.
2. FIELD GEOLOGY.
3. GEOGRAPHIC INFLUENCES.
4. CLIMATOLOGY.
5. INDUSTRIAL GEOGRAPHY.
6. GEOLOGIC EXCURSION (August 4 to August 25).

GERMAN

1. ELEMENTARY GERMAN.
2. ELEMENTARY READING AND ORAL PRACTICE.
3. ELEMENTARY GERMAN, CONTINUATION.
4. ELEMENTARY COMPOSITION AND COLLOQUIAL PRACTICE.
5. TEACHERS' COURSE IN GERMAN.
6. GERMAN DRAMATIC LITERATURE OF THE NINETEENTH CENTURY.

HISTORY

1. ATHENIAN DEMOCRACY.
2. ROMAN EMPIRE.
3. HISTORY OF MODERN EUROPE (1300-1789).
4. FRENCH REVOLUTION.
5. TEACHERS' COURSE IN HISTORY.
6. MEDIÆVAL ENGLISH INSTITUTIONS.
7. ITALIAN RENAISSANCE.
8. HISTORY OF THE COLONIZATION OF NORTH AMERICA THROUGH 1763.
9. GENERAL SURVEY OF THE WESTWARD MOVEMENT.
10. DIPLOMACY CONNECTED WITH THE ACQUISITION OF WESTERN TERRITORY, 1803-1848.

HOME ECONOMICS

- †1. FOODS AND COOKERY.
- †2. TEXTILES AND CLOTHING.
3. CHEMISTRY OF FOODS.
4. PRACTICAL BACTERIOLOGY.

INTERNATIONAL RELATIONS

1. INTERNATIONAL LAW.
2. AMERICAN DIPLOMACY.

JOURNALISM

1. JOURNALISM.
2. THE SHORT STORY.

LATIN AND GREEK

1. CÆSAR AND PROSE COMPOSITION.
2. VIRGIL, AENEID, BOOKS VII-XII.
3. TEACHERS' COURSE IN LATIN.
4. POLITICAL AND SOCIAL ECONOMY OF ANCIENT ROME.
5. CLASSICAL MYTHOLOGY.
6. GREEK ART.

LIBRARY SCIENCE AND PRACTICE

1. LIBRARY SCIENCE AND PRACTICE.

MANUAL TRAINING AND SHOP WORK

- †1. TEACHERS' COURSE IN WOODWORKING.
- †2. TEACHERS' COURSE IN FORGING.
3. WOODWORKING.
4. FORGING.
- †5. AUTOMOBILES.

MATHEMATICS

1. SOLID GEOMETRY.
2. TRIGONOMETRY.
3. COLLEGE ALGEBRA.
4. PLANE ANALYTIC GEOMETRY.
5. DIFFERENTIAL CALCULUS.
6. TEACHERS' COURSE IN MATHEMATICS.
7. FUNDAMENTAL CONCEPTS OF MATHEMATICS.
8. DIFFERENTIAL EQUATIONS.
9. LEAST SQUARES.
10. FOURIER'S SERIES.
11. PROJECTIVE GEOMETRY.
12. DIFFERENTIAL GEOMETRY.
13. THEORY OF ALGEBRAIC EQUATIONS.
14. DEFINITE INTEGRALS.
15. INTRODUCTORY COURSE IN ANALYSIS.

MOUNTAIN FIELD BIOLOGY

(At Tolland)

1. FIELD ZOOLOGY.
- 2-3. ECOLOGICAL PROBLEMS IN ZOOLOGY (Double Course).
4. RESEARCH PROBLEMS IN ZOOLOGY.
5. FIELD BOTANY.
- 6-7. GENERAL PHÆNOGAMIC BOTANY (Double Course).
8. RESEARCH PROBLEMS IN BOTANY.

See also under Biology (at Boulder).

MUSIC

1. THE NOTATION AND TERMINOLOGY OF MUSIC.
- 2-3. PRINCIPLES AND METHODS OF PUBLIC SCHOOL MUSIC (Double Course).
- †4. ELEMENTS OF MUSIC.

OPHTHALMOLOGY

1. SPECIAL ANATOMY AND HISTOLOGY OF THE EYE.
2. EMBRYOLOGY AND ANOMOLIES OF THE EYE.
3. PATHOLOGY, SYSTEMATIC AND LABORATORY.
4. PRINCIPLES AND ADVANCED PROBLEMS IN REFRACTION AND OCULAR MOVEMENTS.
5. GENERAL OPHTHALMIC DIAGNOSIS.
6. OPHTHALMOSCOPIC DIAGNOSIS.
7. DAILY UNIVERSITY EYE CLINIC.
8. SPECIAL LECTURES ON RELATIONS OF EYE DISEASES TO GENERAL MEDICINE AND SURGERY.

PHILOSOPHY

1. HISTORY OF EDUCATION FROM ROUSSEAU TO SPENCER.
2. HISTORY OF PHILOSOPHY FROM BACON TO SPENCER.
3. PRACTICAL ETHICS.

PHYSICAL EDUCATION

ATHLETICS AND COACHING.

- †1. FOOTBALL.
- †2. BASEBALL.
- †3. BASKETBALL.
- †4. TRACK AND FIELD ATHLETICS.

GYMNASTICS, AESTHETIC DANCING, PLAYGROUND MANAGEMENT.

- †1. GENERAL COURSE IN ATHLETICS.
- †2. ADVANCED GYMNASTIC COURSE.
- †3. AESTHETIC DANCING.
- 4. PLAYGROUND COURSE.

PHYSICS

- 1-2. GENERAL COLLEGE PHYSICS (Double Course).
- 3-4. EXPERIMENTAL PHYSICS.

Laboratory work of college grade in mechanics, heat, electricity, magnetism, sound, and light.

- 5. ELECTRICAL MEASUREMENTS.
- 6. ADVANCED ELECTRICAL MEASUREMENTS.
- 7. TEACHERS' COURSE IN PHYSICS.
- 8. DESCRIPTIVE ASTRONOMY.
- 9-16. ADVANCED COURSES IN PHYSICS.
- 17. RESEARCH COURSE IN PHYSICS.

PHYSIOLOGY AND SANITARY SCIENCE

- 1. TEACHERS' COURSE IN ANATOMY AND PHYSIOLOGY.
- 2. SANITARY SCIENCE.

POLITICAL SCIENCE

- 1. GENERAL PRINCIPLES OF POLITICAL SCIENCE.
- 2. AMERICAN GOVERNMENT (College Civics).
- 3. STUDIES IN CONTEMPORARY DEMOCRACY.

See also under Economics and Sociology.

PSYCHOLOGY

- 1. GENERAL PSYCHOLOGY.
- 2. CHILD PSYCHOLOGY.
- 3. EXPERIMENTAL PSYCHOLOGY.
- 4. PSYCHOLOGY OF ADVERTISING.

PUBLIC HEALTH

For an outline of courses leading to a certificate in Public Health, see page 268.

PUBLIC SPEAKING AND READING

1. FUNDAMENTALS OF SPEAKING AND READING.
2. EFFECTIVE SPEAKING.
3. DRAMATIC INTERPRETATION.

ROMANCE LANGUAGES

FRENCH

1. BEGINNERS' COURSE.
2. ELEMENTARY FRENCH READING WITH PRACTICE IN SPEAKING.
3. SEVENTEENTH CENTURY WRITERS AND ADVANCED PROSE COMPOSITION.

SPANISH

1. BEGINNERS' COURSE.
2. ELEMENTARY READING AND ORAL PRACTICE.
3. INTRODUCTION TO THE STUDY OF SOUTH AMERICAN LIFE AND LITERATURE.

STORY-TELLING

- †1. STORY-TELLING AND CHILDREN'S LITERATURE.

SURVEYING AND MECHANICS

- 1-2. SURVEYING (Double Course).
3. TECHNICAL MECHANICS—STATICS.
4. HYDRAULICS.

THE UNIVERSITY TRAINING SCHOOL

The University Training School is conducted by the College of Education of the University of Colorado as an ungraded school, six weeks, June 25 to August 4. Instruction is offered for pupils of any grade, from the first to the twelfth, in all the usual elementary and high-school subjects. For the younger children, three to seven years of age, there is a kindergarten, conducted, as far as is feasible, in the open air. The fees for kindergarten, grade, and high-school pupils vary from \$2.00 to \$8.00, according to the grade and amount of work taken. For those who expect to teach, there are courses especially designed to prepare for teachers' examinations.

UNIVERSITY EXTENSION DIVISION

FACULTY

LIVINGSTON FARRAND, A.M., M.D., LL.D., President of the University.

LORAN D. OSBORN, Ph.D., Director; Professor of Sociology.

FRANK L. CLAPP, Ph.D., Secretary of the Bureau of Public School Service; Assistant Professor of Education.

C. HENRY SMITH, Ph.B., Librarian of the University; Secretary of the Bureau of Library Extension.

ELMORE PETERSEN, A.B., Superintendent of Southeastern Colorado District; Extension Instructor.

ARTHUR E. GILMAN, A.B., Secretary of the Bureau of Community Welfare; Extension Instructor.

JAMES C. STEPHENS, A.B., Extension Instructor in Industrial Classes.

HELEN G. MARTIN, A.M., Office Secretary; Extension Instructor.

The Faculty includes also Professors and Instructors in the various University departments who give extension courses or lectures, together with special Extension Instructors appointed to conduct classes in various centers throughout the State.

NON-RESIDENT INSTRUCTIONAL STAFF

FRANK D. SLUTZ, A.M., *Pueblo*, Extension Instructor in English Literature.

JASPER T. MOSES, A.M., *Pueblo*, Extension Instructor in Spanish.

FRED W. HULING, *Pueblo*, Extension Instructor in Playground Supervision.

JAMES H. COWLES, A.B., *Denver*, Extension Instructor in Life Insurance.

GEORGIA L. FIELD, Ph.D., *Mankato, Minnesota*, Extension Instructor in Comparative and English Literature.

EMILY WOOD EPSTEEN, *Wiggins*, Lecturer on Story-Telling and Children's Literature.

ERNEST C. BLAIR, *Pueblo*, Extension Instructor in Automobiling.

ALBERT B. CARPENTER, *Pueblo*, Extension Instructor in Engineering.

ALBERT E. TUCK, *Pueblo*, Extension Instructor in Public Speaking.

FIRST AID INSTRUCTORS (PHYSICIANS)

DENVER

HENRY SEWALL, Chairman
 JOHN W. AMESSE.
 RUDOLPH W. ARNDT.
 AMOS L. BEAGHLER.
 HENRY S. CANBY.
 PHILLIPS M. CHASE.
 MARTIN D. CURRIGAN.
 EDWARD F. DEAN.
 RAY L. DRINKWATER.
 CHARLES S. ELDER.
 CHARLES A. FERRIS.
 M. ETHEL V. FRASER.
 HAROLD G. GARWOOD.
 CASPER F. HEGNER.
 RANULPH HUDSTON.
 WALTER A. JAYNE.
 S. FOSDICK JONES.

WILLIAM WILEY JONES.
 ARTHUR L. KENNEDY.
 GEORGE P. LINGENFELTER.
 CHARLES B. LYMAN.
 HENRY R. MCGRAW.
 ARTHUR MCGUGAN.
 CARL A. MCLAUTHLIN.
 CHARLES N. MEADER.
 GEORGE K. OLMSTED.
 ROBERT G. PACKARD.
 CUTHBERT POWELL.
 ROBERT M. SHEA.
 ARTHUR W. STAHL.
 L. MARSHALL VAN METER.
 JAMES J. WARING.
 HENRY W. WILCOX.
 SARAH C. WILCOX.

PUEBLO

RICHARD W. CORWIN, Chairman.	CLEMENT V. MARMADUKE.
CRUM EPLER.	JAMES J. PATTEE.
ROYAL H. FINNEY.	WILLIAM SENDER.
WILLIAM HALLEY.	BENJAMIN M. STEINBERG.
FREDERICK M. HELLER.	RAY R. TAYLOR.
J. F. HOWARD.	FRANKLIN E. WALLACE.
MADISON J. KEENEY.	JOHN G. WOLF.
WILBUR LUCAS.	

OTHER CITIES

CHARLES A. DAVLIN, <i>Alamosa.</i>	LUCAS A. MILLER, <i>Colorado City.</i>
OSCAR M. GILBERT, <i>Boulder.</i>	ELDEN L. SADLER, <i>Fort Collins.</i>
CARBON GILLASPIE, <i>Boulder.</i>	PETER J. MCHUGH, <i>Fort Collins.</i>
WILLIAM A. JOLLEY, <i>Boulder.</i>	THOMAS C. TAYLOR, <i>Fort Collins.</i>
CLEMENS F. EAKINS, <i>Brush.</i>	DANA O. NORTON, <i>Fort Collins.</i>
WILLIAM E. TURNER, <i>Brush.</i>	JOHN ANDREW, <i>Longmont.</i>
HART GOODLOE, <i>Canon City.</i>	VIVIAN R. PENNOCK, <i>Longmont.</i>
RAYNOR E. HOLMES, <i>Canon City.</i>	SAM'L B. MCFARLAND, <i>Longmont.</i>
WILBUR T. LITTLE, <i>Canon City.</i>	FRED G. SWARTZ, <i>Nederland.</i>
EDGAR WEBB, <i>Canon City.</i>	

GENERAL STATEMENT

The Extension Division was organized in 1912. It aims to make the campus of the University coextensive with the State, in keeping with the new idea that a state university exists for all the people and not for a favored few alone.

The various departments of the University have much material that can be of great value in the development of the resources of the State. Particularly is this true in connection with the new problems of community welfare. The Extension Division endeavors to connect the University departments with the people who wish to utilize these resources. This is done through two main departments, with various subdivisions, as appears in the following outline of Extension activities:

I. Department of Instruction:

- Correspondence Instruction.

- Public School Service:

 - Educational Research.

 - Academic Instruction.

 - Visual Instruction.

- Vocational Instruction.

II. Department of Public Service:

- Lectures.

- Community Welfare.

- Library Extension.

- Business Men's Short Course.

- Publications.

DEPARTMENT OF PUBLIC SERVICE

The Department of Public Service deals with those more general phases of public education and community welfare which can not be adequately met by courses of formal instruction.

In cooperation with superintendents and groups of teachers, a comparative study is made of school systems and the educational principles involved, and assistance of various kinds is rendered to public schools.

Lectures by members of the University faculties are arranged, separately and in courses, covering a wide range of subjects. Stereopticon slides of an educational character are furnished, at cost of transportation, for use in the public schools and in entertainments that are of interest to both pupils and parents.

Assistance is given to communities throughout the State, upon request, in solving the new problems that have arisen in our complex life. Community Welfare Conferences are held, involving a preliminary study or social survey of the town, a cooperative conference program of three or four days' duration, and a community welfare exhibit. A special bulletin, published by the Bureau of Community Welfare, will be sent upon request.

Information and assistance are given concerning public health and sanitation. Suggestions are made, when desired, for the guidance of clubs and organizations, and outline programs are furnished.

Through the University Library, books and package libraries are sent to high schools, clubs, and individuals. Inquiries for information are answered from the resources of the library and the various departments of the University. In writing for material from the library, address, University of Colorado Library.

Business Men's Short Courses are conducted, either in connection with conventions of business men, or at sessions convened for this special purpose. The course covers a period of three or four days and treats the various aspects of modern business problems.

Each year the Extension Division conducts a State Sociological Conference, devoted to the consideration of important social problems.

Bulletins are published from time to time making available to the public the results of investigations carried on by members of the University faculties.

DEPARTMENT OF INSTRUCTION

The Department of Extension Instruction offers formal courses of study by correspondence and in classes, to such persons as wish to engage in systematic study without leaving home or giving up their regular occupations.

Both academic and vocational courses are given. The academic courses cover a large part of the regular curriculum of the College of Liberal Arts, and, in general, receive credit which applies toward a university degree. Courses in secondary education are also offered, particularly for the benefit of those beyond the high-school age or living where a high school is not accessible.

The vocational courses are intended more especially for young men and women in offices, stores and industrial life who desire to increase the value of their work and to gain a better understanding of its correlation with the business world in general. The daily task and the study of the educational principles underlying it thus supplement each other. The vocational courses are granted recognition by means of a University Extension certificate.

Welfare courses are offered, usually in classes, in such subjects as First Aid to the Injured; English Language and Citizenship for foreigners in industrial groups; Infant Hygiene and courses of a similar nature to groups of mothers.

A certificate course in Public Health is also offered, partly by Extension and partly in the Summer Session. (See page 268.)

CORRESPONDENCE INSTRUCTION

UNIT OF WORK AND UNIVERSITY CREDIT.—When the work given by correspondence is of University grade and college entrance requirements have been fulfilled, it is granted University credit of equal value to that done in residence. A course that consists of forty assignments is granted five hours' credit toward the 122 hours required for the A.B. degree; a course of thirty-two assignments, four hours' credit; a course of twenty-four assignments, three hours' credit; and a course of sixteen assignments, two hours' credit. It is estimated that a five-hour course of forty lessons will require a

minimum of one hour of study a day, six days in the week, for forty weeks. The unit of work is thus a course divided into eight assignments, involving one hour's credit, and requiring about one hour's study a day for a period of eight weeks. One-fourth of the work for the A.B. degree may be done in the Extension Division.

INSTRUCTORS.—Correspondence-study is carried on under the immediate supervision of the members of the University faculty.

METHOD.—The student who desires to undertake correspondence-study should enroll directly with the University Extension office upon blanks furnished for that purpose on application. After the enrollment has been duly completed, assignments of lessons prepared by the instructors will be sent to the student, together with directions concerning textbooks, study, outline work, and such other details as may be deemed helpful. The student may begin his course at any time and proceed with the work as fast as he wishes. An examination is given at the end of the course.

WORK, PARTLY BY UNIVERSITY EXTENSION, FOR MASTER OF ARTS DEGREE.—For information regarding requirements for the Master of Arts degree in connection with University Extension Work, see page 182.

EXPENSES.—The fee for each correspondence course of forty lessons is \$20.00; for a shorter course the fee is proportionately less—that is, a three-hour course (twenty-four lessons), is \$12.00, and a two-hour course (sixteen lessons), \$8.00. The unit of reckoning is a course of eight assignments, involving one hour's credit, and costing \$4.00. Where several courses are taken at one time, there is a reduction of 25 per cent. on all fees in excess of \$20.00. The fees are payable in advance, and are not refunded if the student drops the work, unless in exceptional cases. The textbooks are purchased by the students themselves, as is done by resident students. Reference books are loaned by the University Library so far as its resources will permit.

CLASS INSTRUCTION

ORGANIZATION AND MEETINGS.—University Extension Classes are organized in places where groups of students may wish to study the same course together. The class meets in the evening, late afternoon, or on Saturdays, and for as many sessions as the course studied may require. The class should enroll directly with the Univer-

sity Extension office upon blanks furnished for that purpose on application, after which, other details of organization will be completed.

CREDIT.—Where University credit is involved, the class usually holds a double-period session (100 minutes) during the school year, or for a single semester. The work approximates as closely as possible that taken in residence—in the quality of work done, the conduct of the courses, the time required of the student for preparation, and the amount of credit given.

Upon the completion of such a course and the passing of a satisfactory examination, the work will receive the same credit as a similar two-hour course taken at the University, namely, two hours for a semester or four hours for the academic year. If the class prefers, sessions may be held less frequently than once a week, or for a shorter period than 100 minutes; in which case credit will be allowed in proportion.

INSTRUCTORS AND CLASS LEADERS.—The classes are conducted under the supervision of the heads of the appropriate departments at the University, but with different arrangements in different places so far as local leadership is concerned:

1. With a University instructor, when the class is located in a town near the University.

2. With a local instructor of University qualifications, when the class is too far away to be reached by an instructor from the University.

3. With a class leader, when a group of students may wish to unite for study where no instructor is available in the special subject desired. In this case, one of the members of the class is appointed class leader, and the course is conducted directly with the University by correspondence.

FEES.—The fees for class instruction in academic courses are \$5.00 per student for a class meeting weekly for a double period throughout one school semester (two credits, in credit courses); or \$10.00 for such a class conducted during the school year (four credits, in credit courses); or in the same proportion for classes meeting less frequently or for a shorter recitation period.

The fees for instruction in business and industrial classes are at the uniform rate of fifty cents per lesson, making a course of ten lessons cost each student \$5.00; sixteen lessons, \$8.00, and so on in the same proportion.

EXTENSION COURSES

BIOLOGY

1. BIOLOGICAL THEORIES.
2. SANITARY SCIENCE.
3. HYGIENE.
4. ELEMENTS OF ZOOLOGY.
5. ECONOMIC ZOOLOGY.
6. ICHTHYOLOGY.
7. ENTOMOLOGY.
8. PALEOBOTANY.
9. MOLLUSCA.
10. ASSIGNED READINGS IN BIOLOGY.

BUSINESS

1. RETAIL SELLING AND STORE MANAGEMENT.
2. ADVERTISING.
3. ACCOUNTANCY.
4. INSURANCE.

CHEMISTRY

Work by special arrangement.

CHILD WELFARE

1. HYGIENE OF THE CHILD'S BODY.
2. HYGIENE OF THE CHILD'S MIND.

CITIZENSHIP

1. COURSES PREPARING FOR NATURALIZATION.
2. ENGLISH.
3. ARITHMETIC.
4. CIVICS.

ECONOMICS

1. ECONOMIC RESOURCES AND COMMERCIAL GEOGRAPHY.
2. ECONOMIC HISTORY OF THE UNITED STATES.
3. PRINCIPLES OF ECONOMICS.

EDUCATION

1. PRINCIPLES OF EDUCATION.
2. PRINCIPLES OF TEACHING.
3. ANTHROPOLOGY.
4. ETHNOLOGY.
5. SOCIAL PSYCHOLOGY.
6. EDUCATION AND SOCIETY.
7. CHILD STUDY.
8. ORGANIZATION AND ADMINISTRATION OF SCHOOLS.
9. EDUCATIONAL THEORY.
10. PRACTICUM IN EDUCATION.
11. SCHOOL SURVEYS.

ENGINEERING (ELECTRICAL)

1. ELEMENTS OF ELECTRICITY AND DIRECT-CURRENT MACHINERY.
2. ALTERNATING CURRENTS AND ALTERNATING-CURRENT MACHINERY.
3. CENTRAL ELECTRIC STATIONS.
4. ELECTRIC WIRING.
5. TELEPHONES AND TELEPHONE APPARATUS.
6. ELECTRICAL MACHINERY.

Graduate courses arranged for engineering alumni.

ENGINEERING (MECHANICAL)

1. ENGINEERING MATHEMATICS.
2. ENGINEERING MATERIALS.
3. SHORT COURSE IN DRAWING.
4. BOILERS.
5. STEAM ENGINES.

Graduate courses arranged for engineering alumni.

ENGLISH LANGUAGE

1. COMPOSITION I.
2. COMPOSITION II.
3. SHAKESPEARE.

ENGLISH LITERATURE

1. HISTORY OF ENGLISH LITERATURE.
2. AMERICAN AUTHORS.
3. SHAKESPEARE: ALL THE PLAYS.

FIRST AID TO THE INJURED

1. LECTURES AND DEMONSTRATIONS.

FRENCH

1. BEGINNERS' COURSE (Classes).
2. PROSE COMPOSITION AND CONVERSATION (Classes).
3. FRENCH LITERATURE (Classes).
4. ADVANCED PROSE COMPOSITION (Correspondence or in Classes).

GERMAN

1. COMPOSITION (Elementary).
2. ADVANCED GERMAN COMPOSITION.
3. THE GERMAN NOVELLE.

GREEK

1. ELEMENTARY COURSE.
2. CLASSICAL MYTHOLOGY.

HISTORY

1. MEDIÆVAL HISTORY.
2. MODERN HISTORY.
3. EUROPE SINCE 1815.
4. ENGLISH HISTORY TO 1558.
5. ENGLISH HISTORY 1558 TO THE PRESENT TIME.

LATIN

1. LATIN PROSE.
2. LATIN LITERATURE.
3. ROMAN HISTORY.
4. MARTIAL AND PLINY.

MATHEMATICS

1. COLLEGE ALGEBRA.
2. PLANE TRIGONOMETRY.
3. PLANE AND SPHERICAL TRIGONOMETRY.
4. SOLID GEOMETRY.
5. PLANE ANALYTIC GEOMETRY.
6. DIFFERENTIAL CALCULUS.
7. INTEGRAL CALCULUS.
8. DIFFERENTIAL EQUATIONS.
9. ADVANCED COLLEGE ALGEBRA.
10. HISTORY OF MATHEMATICS.

MUSIC

1. HARMONY.

PHILOSOPHY

1. HISTORY AND PHILOSOPHY OF EDUCATION.
2. ETHICS.
3. HISTORY OF PHILOSOPHY.
4. LOGIC.

PHYSICS

1. GENERAL PHYSICS.
2. THEORETICAL MECHANICS—STATICS.
3. THEORETICAL MECHANICS—DYNAMICS.
4. DESCRIPTIVE ASTRONOMY.

PSYCHOLOGY

1. GENERAL PSYCHOLOGY.

PUBLIC HEALTH

See below.

SANITARY SCIENCE

See Biology.

SOCIOLOGY

1. PRINCIPLES OF SOCIOLOGY.
2. SOCIAL PROBLEMS.
3. THE FAMILY.
4. THE PSYCHOLOGY OF SOCIAL CONTROL.

SPANISH

1. BEGINNERS' COURSE (Classes).

STORY-TELLING

1. STORY-TELLING AND CHILDREN'S LITERATURE.

SECONDARY EDUCATION

Arranged upon application.

CERTIFICATE COURSE IN PUBLIC HEALTH*

FIRST YEAR.

READING AND CORRESPONDENCE COURSES.

HYGIENE AND PREVENTIVE MEDICINE.

ELEMENTS OF ZOOLOGY.

GENERAL BACTERIOLOGY.

SUMMER SESSION COURSES.

GENERAL BACTERIOLOGY—LECTURES AND LABORATORY.

PLANKTONOLOGY—LECTURES AND LABORATORY.

SECOND YEAR.

READING AND CORRESPONDENCE COURSES.

EPIDEMIOLOGY AND INFECTIOUS DISEASES.

WATER SUPPLY.

SEWERAGE AND METHODS OF SEWAGE DISPOSAL.

SUMMER SESSION COURSES.

ADVANCED BACTERIOLOGY—WATER, MILK, ETC.

WATER ANALYSIS.

THIRD YEAR.

READING AND CORRESPONDENCE COURSES.

PUBLIC HEALTH PROBLEMS.

PUBLIC HEALTH LAW.

PUBLIC HEALTH ADMINISTRATION.

STATISTICS, THEIR THEORY AND APPLICATION.

SUMMER SESSION COURSE.

PUBLIC HEALTH. Laboratory Methods.

FOURTH YEAR.

READING AND CORRESPONDENCE COURSES.

ANALYSIS AND PREPARATION OF LECTURES AND PAPERS UPON
HEALTH.

HYGIENE AND SANITATION FOR LAY AUDIENCES.

TUBERCULOSIS AND OTHER SPECIAL PROBLEMS.

MEDICAL EXAMINATION OF SCHOOLS AND SCHOLARS.

CORRECTION OF DEFORMITIES AND DEVELOPMENT DEFECTS.

SUMMER SESSION COURSE.

PUBLIC HEALTH. Field Work.

* The tuition for courses leading to the Certificate in Public Health, including Summer Session fees, is \$50.00 per year.

GRADUATES

DEGREES CONFERRED, JUNE 7, 1916

DOCTOR OF LAWS (*honoris causa*)

Albert Ross Hill, President of the University of Missouri.

DOCTOR OF SCIENCE (*honoris causa*)

Richard Bishop Moore, United States Bureau of Mines.

MASTER OF ARTS

Clifford Banta, A.B. 1915, Wabash College.
Craig Miller Bouton, A.B. 1904, University of Colorado.
Winifred Belle Brammer, A.B. 1915, University of Colorado.
Robert Martin Burns, A.B. 1915, University of Colorado.
Gladys Constance Curtis, A.B. 1914, University of Colorado.
Addie May Fairchild, A.B. 1914, University of Colorado.
Eva Allen Freeman, A.B. 1915, University of Colorado.
William Gray Gambill, B.S. 1914, Kansas State Normal.
Helen Arvilla Leonard, A.B. 1909, Vassar College.
Edwin Bray Place, A.B. 1913, University of Colorado.
Archibald Herbert Stockder, A.B. 1915, University of Colorado.
Alice Helen Sullivan, A.B. 1916, University of Colorado.
Perry Clayton Swift, A.B. 1909, Doane College.
Esbon Yokum Titus, A.B. 1914, University of Colorado.
Francis Wolle, A.B. 1911, University of Pennsylvania.

CIVIL ENGINEER

Wilbur Arthur Hitchcock, B.S. (C.E.) 1912, University of Wyoming.
Howard Eastwood Phelps, B.S. (C.E.) 1907, University of Colorado.

MECHANICAL ENGINEER

Siebelt L. Simmering, B.S. (M.E.) 1910, University of Colorado; M.S., 1913, University of Illinois.

DOCTOR OF OPHTHALMOLOGY

Valentine Benjamin Fischer, M.D. 1909, A.B. 1915, University of Colorado.

DOCTOR OF MEDICINE

Laurence Bernard
Charles Sidney Bluemel
John Samuel Bouslog
William Ralph Campbell
Chester Howard Elliott
Arthur Blaine Gjellum
Robert John Groom

Willis Brown Hardesty
Arthur Ray Lannon
Harold George Macomber
Frank Ernest Palmer
Charles Walker Streamer
Louis Wilenchick, Jr.

BACHELOR OF LAWS

Cleo Russell Froman
John Wallace Henderson
Clarence Leo Ireland
William Mabry King
Edward Gillett Knowles
James Robert McClelland
Homer Stroud McMillin

Glenn Thurston Maltby
Herbert Alonzo Miller
Richard Brown Scandrett, Jr.
Bryant Smith
Robert Gunson Smith
Herbert Arthur Spring
Hubert Devotion Waldo, Jr.

BACHELOR OF ARTS

Marjorie Adams
*Frank Ernest Allen
Sophia Ravitch Altschiller
Jesse May Anderson
Jose Andres Atencio
Morris Jacob Baskin
cum laude
Eva Margaret Baum
*Ann Dickie Boyd
Letitia Austin Brace
magna cum laude
*Sarah Margaret Bracy
Hattie May Brown
cum laude
Margaret Katherine Burke
Thomas George Burke
*Joanna Teresa Carey
*Margaret Carlson
*Elda Alice Chatfield
cum laude
Anna Marie Cheney
Bess Adel Cheney
magna cum laude
†Carl Peter Cline
*Viola Myrtle Cluphf
Leo Bertram Cohenour
William Hamilton Cooper
Fern Cornville
*Jessie Margaret Crawford
*Maude Evangeline Crawford
John Theodore Donovan
Fonnie Victor Douden
Mabel Fredericka Dunsmore
Elva Pearl Erwin
Ernest John Fankhauser
Gladys Adel Fisher
*Minnie Elizabeth Fleming
*Quivera Muriel Frazier
magna cum laude
Walter Harmon Germann
magna cum laude
Adelbert Jay Greene
cum laude
Roscoe Howland Healy
Willard Richard Helmke
Mary Virginia Higginbotham

Elizabeth Hoskin
cum laude
Hugo Albert Huber
Lydia Hulburt
Margaret Ann Hutchinson
*Anna Beth Hyde
cum laude
Wayne Franklin Ivers
cum laude
Harold Robert Kaiser
*Cora Kiker
Darthula Lindberg
cum laude
*Ruth Bush Lovelace
cum laude
Besse Low
cum laude
*Mary McAndrew
cum laude
Howard Vincent McCurdy
Mary Wilson McGehee
Marguerite Frances McGraw
†Patrick John McKee
Sadie Ethel McNeil
Rebecca Byrd Masterson
Florence K. Mathis
Freida Meents
cum laude
Eli Abraham Miller
cum laude
*Corwina Rouse Mills
cum laude
*Helen Lenore Moore
magna cum laude
*Frances Kathryn Myer
cum laude
Helen Malcolm Nafe
Robert Wallace Nafe
*Mae Claire Needham
Maude Nelson
Margaret Estella Nichols
*Portia Harper Olwin
cum laude
*Marian Cameron Orris
cum laude
Arnold Ervin Perreten
cum laude

* These candidates received also the Bachelor's Diploma in Education. Mary Magdalene Stryker, A.B. 1914, Vida Helen Merrill, A.B. 1915, and Frances Edna Williams, A.B. 1915, also received the Bachelor's Diploma in Education.

† These candidates received also the Bachelor's Diploma in Commerce.

Nellie Malinda Phillips
 Sarah Agnes Philpott
 Horace Hale Pierce
 Agnes Piers
 *Claire Marie Quillin *cum laude*
 *Hazel Read *cum laude*
 Walter Kellogg Reed
 Margaret Thresa Reilly
 Lidablanche Robe
 Leslie Truesdale Ross *magna cum laude*
 Frederick William Sanborn, Jr. *magna cum laude*
 Edna Halcyone Sayre *cum laude*
 Leland Stanford Sayre
 Richard McDonald Scott, Jr. *cum laude*
 *Addie Richman Scouton
 Henry Sterling Sherman
 *Maude Alice Shulters *cum laude*
 George Arnold Shuman
 Nellie Violet Sillik

Duane Louis Simpkins *cum laude*
 *Blanche Elizabeth Smith
 Wall Edward Smothers *cum laude*
 Walter Lee Spring
 Raymond Coffey Staley
 Ezma Fae Stanley
 Carl James Stephens
 Ruth Stocker
 Edward Olin Stoddard
 *Alice Helen Sullivan *magna cum laude*
 Helen Elaine Sullivan
 Charles Patrick Swindler
 Mary Elizabeth Tennant
 Edward Juel Tesdell
 *Hazel Thomas
 Henry David Thoreau
 Harry Robert Trattner *cum laude*
 George Peterkin Unseld
 Otto Urban Weimer
 Myron Gilmore Wright
 Gladys Amelia Young
 Walter Harvey Ziegler

BACHELOR OF SCIENCE (C.E.)

Lester Treat Beresford
 Lee Somerville Dillon
 Paul Joseph Dunn
 John Fewlass Greene
 Wilfred McGregor Hall *with honors*
 Nathan Wilson Morgan
 Emil Raymond Nelson
 John Charles Park

William Rolph Pearce *with special honors*
 Hugh Applegate Reid
 Willard Weaver Rusk *with special honors*
 John Sage
 Carl Ludwig Fred Scheffel
 Victor Emil Vallet
 Parker Richards Whitney

BACHELOR OF SCIENCE (E.E.)

Samuel Judson Blythe, Jr.
 Maynard McKay Boring
 Donald Atwood Campbell
 James Seymour Hodges *with special honors*
 Michael Norman Idelson *with special honors*
 Wayne Franklin Ivers *with honors*

Paul Francis McBride
 Ryotaro Nakano
 Walter Kenneth Nelson *with special honors*
 Ernest Frederick Peterson *with special honors*
 Roy Lee Rapp
 Morris Sperry Strock

BACHELOR OF SCIENCE (M.E.)

Ronald Vedder Billington
 Malcolm White Dillon
 Edison B. Good
 Arthur Frederick Lyster *with special honors*
 Clyde Hirsch McClintock
 Barrett Whitney Morrison *with honors*

Marvin Howard Russell
 Wilfred David Sawyer *with special honors*
 Harold Sidney Worcester *with special honors*

*These candidates received also the Bachelor's Diploma in Education.

BACHELOR OF SCIENCE (Ch.E.)

Quintin Randolph Dungan
*with honors*Charles Russell Locke
Frank Wanless RobertsonMarcus Henry Sherrill
Sam Tour*with special honors*
Kenneth Ingram White

BACHELOR OF SCIENCE IN PHARMACY

George Elwood Mallory

Charles Harold Welles

PHARMACEUTICAL CHEMIST

Agnes Pauline Bechmann
Mattie Elizabeth DeanWalter Carl Fedde
Walter Eugene Law

DEGREES BY YEARS

Year	Hon.	Grad.	Med.	Law	Arts	Eng.	Phar.	Total	* Dip. Ed.	* Dip. Com.
1882	1	...	...	...	6	...	...	7	...	...
1883	...	...	...	...	2	...	...	2	...	...
1884	...	...	...	...	1	...	...	1	...	...
1885	...	1	2	...	...	...	...	3	...	...
1886	...	...	2	...	7	...	...	9	...	...
1887	...	2	1	...	2	...	...	5	...	...
1888	...	...	1	...	4	...	...	5	...	...
1889	2	...	1	...	3	...	...	6	...	...
1890	...	...	4	...	3	...	...	7	...	...
1891	2	...	5	...	9	...	...	16	...	...
1892	...	...	1	...	4	...	...	5	...	...
1893	2	2	3	...	10	...	...	17	...	...
1894	...	1	12	12	10	...	...	35	...	...
1895	1	4	11	6	12	...	...	34	...	...
1896	...	...	13	7	11	...	...	31	...	...
1897	...	1	22	9	19	1	...	52	...	...
1898	1	5	...	9	21	3	...	39	...	...
1899	1	5	...	13	20	12	...	51	...	...
1900	1	7	7	...	28	5	...	48	...	...
1901	...	6	8	12	43	5	...	74	...	...
1902	1	9	13	14	33	8	...	78	...	...
1903	...	4	8	11	28	13	...	64	...	...
1904	...	12	14	20	47	16	...	109	...	...
1905	3	11	6	15	41	14	...	90	...	...
1906	2	12	16	12	64	14	...	120	...	...
1907	...	9	12	16	53	19	...	109	...	...
1908	1	14	11	16	77	27	...	146	8	...
1909	2	15	11	29	72	32	...	161	22	...
1910	1	14	8	21	82	34	...	160	28	...
1911	...	15	39	27	96	37	...	214	31	1
1912	1	16	39	22	110	43	...	231	49	...
1913	3	23	51	22	106	42	1	248	35	6
1914	4	29	16	35	115	45	5	249	39	...
1915	2	26	8	17	127	41	7	228	36	2
1916	2	19	13	14	111	42	6	207	31	2
	33	262	358	359	1,377	453	19	2,861	279	11

*These are given as evidence that certain specified courses have been included in the work for the A.B. and A.M. degrees.

SUMMARY

Number of men who have received degrees.....	1,663
Number of women who have received degrees.....	900
Total number of persons graduated.....	2,563
Persons who have received one degree.....	2,284
Persons who have received two degrees.....	261
Persons who have received three degrees.....	17
Persons who have received four degrees.....	1
Total alumni	2,563
Total degrees granted	2,861
Duplicate degrees	298
	2,563
Number of graduates living.....	2,460
Number of graduates deceased.....	103
	2,563

GEOGRAPHICAL DISTRIBUTION OF GRADUATES

Alabama	2	Nebraska	34
Alaska	2	Nevada	16
Arizona	33	New Hampshire	2
Arkansas	4	New Jersey	9
California	116	New Mexico	33
Colorado	1,327	New York	78
Connecticut	12	North Carolina	3
Delaware	2	North Dakota	4
Florida	3	Ohio	19
Georgia	2	Oklahoma	12
Hawaii	1	Oregon	23
Idaho	49	Pennsylvania	53
Illinois	78	Philippine Islands	3
Indiana	25	Porto Rico	1
Iowa	30	South Dakota	9
Kansas	24	Tennessee	4
Kentucky	3	Texas	29
Louisiana	6	Utah	34
Maine	3	Virginia	1
Maryland	2	Washington	61
Massachusetts	27	Washington, D. C.....	11
Michigan	9	West Virginia	1
Minnesota	16	Wisconsin	9
Mississippi	3	Wyoming	40
Missouri	37	Foreign	32
Montana	23	Address unknown	100
		Total	2,460

CATALOGUE OF STUDENTS

GRADUATE SCHOOL

NAME	RESIDENCE
Adams, Dorothy Eleanor.....	Denver
English Literature, Philosophy.	
Ashley, Glaister Herod, A.B., M.D.....	Boulder
University of Colorado, 1913, 1915.	
Public Health.	
Baum, Eva Margaret, A.B.....	Natoma, Kansas
University of Colorado, 1916.	
Chemistry, Geology.	
Beard, Harry Randall.....	Denver
Chemistry.	
Bowen, Kirby Vernon, A.B., A.M.....	Boulder
Friends University, 1913; University of Colorado, 1915.	
Zoology, Philosophy.	
Bridges, Bertha Ellis, Ph.B.....	Boulder
Denison University, 1906.	
German, Chemistry.	
Bristor, Wallace, A.B.....	Doland, South Dakota
State University of Iowa, 1916.	
Philosophy, Sociology.	
Brumbaugh, Lenn Andrew, A.B.....	Berthoud
Cotner University, 1916.	
Philosophy, Psychology.	
Burke, Margaret Katherine, A.B.....	Boulder
University of Colorado, 1916.	
English Literature.	
Christian, Jacob William, B.S. (M.E.).....	Boulder
University of Colorado, 1913.	
Mechanical Engineering.	
Coffin, Reuben Clare, A.B.....	Boulder
University of Colorado, 1909.	
Geology, Mineralogy.	
Curtis, Irene Hall, A.B.....	Boulder
University of Colorado, 1908.	
English Literature.	
Dillon, Malcolm White, B.S. (M.E.).....	Windsor
University of Colorado, 1916.	
Mechanical Engineering.	
Downing, Alice, A.B., A.M.....	Aspen
University of Colorado, 1911; University of Chicago, 1914.	
English Language, English Literature.	
Duce, James Terry, A.B.....	St. Louis, Missouri
University of Colorado, 1915.	
Mineralogy, Chemistry, Geology.	
Dungan, Quintin Randolph, B.S. (Ch.E.).....	Boulder
University of Colorado, 1916.	
Mechanical Engineering, Chemistry.	
Elliott, Chester Howard, A.B., M.S., M.D.....	Boulder
Westminster College, 1909; University of Chicago, 1914; University of Colorado, 1916.	
Public Health.	
Evans, Arthur Thompson, A.B., A.M.....	Boulder
University of Illinois, 1912; University of Colorado, 1915.	
Botany.	

NAME	RESIDENCE
Fairchild, Grace Margaret, A.B.....	Denver
University of Colorado, 1911.	
Education, Political Science.	
Farrington, Florence Mildred, A.B., A.M.....	Boulder
University of Colorado, 1913, 1914.	
Germanic Languages, French.	
Fatland, Ivy La Myra, A.B.....	Iowa City, Iowa
State University of Iowa, 1915.	
Philosophy, Psychology.	
Feingold, Marcus, M.D.....	New Orleans, Louisiana
University of Vienna, 1896.	
Ophthalmology.	
Flach, John Jacob, B.S. (E.E.).....	Boulder
University of Colorado, 1915.	
Electrical Engineering.	
Galloway, Gerald Fogarty, B.S. (C.E.).....	Houston, Texas
University of Colorado, 1914.	
Civil Engineering, Mechanics.	
Garbarino, Lucinda Marie, A.B., A.M.....	Boulder
University of Colorado, 1901, 1902.	
English Literature.	
Gauger, Charles, A.B.....	Coxsackin, New York
Pennsylvania College, 1905.	
English Literature.	
Hall, Lothrop James, A.B.....	Boulder
Missouri Valley College, 1916.	
Education, Philosophy.	
Harrison, William Groce, B.Sc., M.D.....	Birmingham, Alabama
Alabama Polytechnic Institute, 1890; Maryland University, 1892.	
Ophthalmology.	
Heaton, Wilbur McKean, Ph.B.....	Pueblo
Dickinson College, 1904.	
Chemistry, Iron and Steel.	
Hilderman, Hannah Clara	Sterling
Economics, History.	
Hull, Edwin Dillman, B.S., M.S.....	Chicago, Illinois
University of Chicago, 1914, 1916.	
Botany, Zoology.	
Hull, Lois Fern, A.B.....	Boulder
University of Kansas, 1913.	
Latin, Greek, German.	
Hunter, Helen Josephine, A.B. in Ed.....	Breckenridge
State Teachers College, 1912.	
Comparative and English Literature, Philosophy.	
Huntington, Vera Allison, A.B.....	Boulder
University of Colorado, 1912.	
Botany, Romance Languages.	
Hutsinpillar, Jessie, A.B., A.M.....	Ironton, Ohio
Wellesley, 1902; Ohio State University, 1909.	
Sociology.	
Joslyn, Florence Galligan, A.B., A.M.....	Boulder
University of Colorado, 1913, 1914.	
Education.	
Kendall, Claribel, A.B., A.M.....	Boulder
University of Colorado, 1912, 1914.	
Mathematics.	
Knoettge, Carl Harman, A.B., B.S. (C.E.).....	Ithaca, New York
University of Colorado, 1907, 1910.	
Civil Engineering.	
Lindberg, Darthula, A.B.....	Boulder
University of Colorado, 1916.	
English Literature.	
McKeehan, Irene Pettit, A.B.....	Boulder
University of Minnesota, 1903.	
English Literature, English Language, History.	

NAME	RESIDENCE
Macy, Icie Gertrude, A.B., B.S.....	Gallatin, Missouri
Central College for Women, 1914; University of Chicago, 1916.	
Chemistry, Geology.	
Mallory, Walter Frank, B.S. (M.E.).....	Boulder
University of Colorado, 1914.	
Mechanical Engineering.	
Mann, Clair Victor, B.S. (C.E.).....	Boulder
University of Colorado, 1914.	
Civil Engineering, Mathematics, Physics.	
Martin, Helen Gertrude, A.B., A.M.....	Leadville
University of Colorado, 1914, 1915.	
Education.	
Martinson, Charles Gilbert, B.A., B.S. (M.E.).....	College Station, Texas
Friends University, 1908; University of Kansas, 1912.	
Mechanical Engineering, Civil Engineering.	
Mathis, Florence, A.B.....	Boulder
University of Colorado, 1916.	
Education.	
Meents, Frieda, A.B.....	Boulder
University of Colorado, 1916.	
Germanic Languages, History.	
Mereness, Seth A., M.D.....	Oneonta, New York
Albany Medical College, 1890.	
Public Health.	
Merrill, James Lynn, B.S. (C.E.).....	Boulder
University of Colorado, 1913.	
Civil Engineering.	
Morrill, Edgar Lamprey, M.D.....	Fort Collins
Creighton University, 1902.	
Ophthalmology.	
Morris, Ada, A.B.....	Lineville, Iowa
University of Colorado, 1903.	
Education, English Literature.	
Munck, Harold Peter, A.B.....	Boulder
University of Minnesota, 1910.	
Economics.	
Murch, Helen Rose, A.B.....	Boulder
University of Colorado, 1915.	
Education, English Literature.	
Myer, Frances Kathryn, A.B.....	New Pluta, Ohio
University of Colorado, 1916.	
English Literature, English Language, Philosophy.	
Pryor, Hugh Clark, A.B., A.M.....	Boulder
University of Colorado, 1911, 1912.	
Education, Psychology, Sociology.	
Ross, Leslie Truesdale, A.B.....	Denver
University of Colorado, 1916.	
Romance Languages, German.	
Shelledy, Ruth Marguerite, A.B., A.M.....	Boulder
University of Colorado, 1910, 1912.	
Germanic Languages.	
Shen, Mung Chin.....	Kiukiang, China
Physics, Mathematics, Chemistry.	
*Simmering, Siebelt Luke, B.S. (M.E.), M.S.....	Manhattan, Kansas
University of Colorado, 1910; University of Illinois, 1913.	
Mechanical Engineering.	
Simpkins, Lewis Duane, A.B.....	Denver
University of Colorado, 1916.	
Chemistry, Physics, Mineralogy.	
Smith, Esther, A.B.....	Crete, Nebraska
Doane College, 1914.	
English Literature, Music.	

*Registered in 1915-1916, after the publication of the Catalogue.

NAME	RESIDENCE
Snyder, May, A.B.....	Colorado Springs
Colorado College, 1915.	
Romance Languages.	
Sperry, Charles Stillman, B.S. (C.E.), A.B., C.E.....	Boulder
University of Colorado, 1911, 1915.	
Mathematical Physics, Mathematics.	
Stine, Elizabeth Macklin, B.Sc.....	Boulder
Hastings College, 1889.	
English Literature.	
Trompen, Dorothy Catherine, A.B.....	Grand Rapids, Michigan
Hope College, 1914.	
English Literature, German.	
Trompen, Sara-Helene, A.B.....	Grand Rapids, Michigan
Hope College, 1916.	
English Literature, German.	
Unsold, George Peterkin, A.B.....	Westminster
University of Colorado, 1916.	
Mathematics, Physics.	
Vandiver, Willie Pearl, A.B.....	Boulder
Nebraska Wesleyan University, 1913.	
Chemistry.	
*Ward, Leon Stevens, A.B.....	Greeley
Park College, 1912.	
Chemistry, Physics.	
Wolle, Francis, A.B., A.M.....	Boulder
University of Pennsylvania, 1911; University of Colorado, 1916.	
English Literature, Philology.	

*Registered in 1915-1916, after the publication of the Catalogue.

SCHOOL OF MEDICINE

FOURTH-YEAR CLASS

NAME	RESIDENCE
Brown, Charles Kirk.....	Seattle, Washington
Bush, Cyrus Everette, A.B.....	Denver
Dewey, Albert Warner, A.M.....	Denver
Dunklee, George Kinney, A.B.....	Denver
Epstein, William Abraham.....	Denver
Fleming, William Donaldson, A.B.....	Boulder
Freed, Hazel, B.S.....	Denver
Greedy, Paul Victor, A.B.....	Denver
Kemper, Constantine, A.B.....	Granville, Ohio
Lynch, Elwood Best, A.B.....	Leadville
McDonald, Franklin Joseph, A.B.....	Leadville
Rothwell, Stephen Gainsford, A.B.....	Denver
Salberg, Joseph Brenald.....	Boulder
Schachet, Reuben.....	Denver
Sloan, William Wesley, A.B.....	Berthoud
Teplitzky, Leo.....	Denver
*Ullery, Fred Lee, A.B.....	Aurora, Nebraska
Vance, Deane Harold.....	Denver
Vandevere, William Ewing, B.S.....	Eden, Mississippi
Waters, Pattison Albert, A.B.....	Denver
Wright, Myron Gilmore, A.B.....	Denver

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THIRD-YEAR CLASS

NAME	RESIDENCE
Baskin, Morris Jacob, A.B.....	Denver
Cohenour, Leo Bertram, A.B.....	Denver
Healy, Roscoe Howland, A.B.....	Denver
von Holdt, Dora Elizabeth, B.S.....	Denver
Hurley, James Roy.....	Denver
Hutchinson, Margaret Ann, A.B.....	Boulder
Miller, Lewis Israel, A.B.....	Denver
Printz, Morris, A.B.....	Denver
Proffitt, Ray Verne.....	Denver
Wolf, Julius Aaron, A.B.....	Denver

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SECOND-YEAR CLASS

NAME	RESIDENCE
Anderson, Frank William, B.S.....	Boulder
Bach, Walter Leo.....	Denver
Beery, Joseph Homer.....	Boulder
Bowes, William Joseph.....	Denver
Day, Roy Joshua.....	Boulder
Dewey, Edward Bradley.....	Denver
Faber, Edwin G.....	Tyler, Texas
Graves, Herman Coddington.....	Canon City
Gregg, Harold William, A.B.....	Boulder
Gundrum, Lawrence K.....	Boulder
Guthrie, Robert Lee.....	Denver
Heuston, Howard Hull, B.S.....	Denver
Humphrys, Ethel Dare.....	Hooper
Humphrys, George Sinclair.....	Hooper

*Died, November 19, 1916.

NAME	RESIDENCE
Katzman, Maurice.....	Denver
Kenagy, Fayre.....	Rupert, Idaho
Kretschmer, Otto Sheibel, A.B.....	Peru, Illinois
Miller, Eli Abraham, A.B.....	Denver
Munro, Everett Hale.....	Colorado Springs
Oliver, Rogers King.....	Boulder
Price, Richard Craig.....	Trinidad
Prien, Otto Louis.....	Boulder
Prien, Roland Henry.....	Boulder
Sears, Thaddeus Perce, A.B.....	Denver
Smith, Willard Arthur.....	Boulder
Tindall, Henry Watkins.....	Denver
Trattner, Harry Robert, A.B.....	Cleveland, Ohio
Walton, James Blaine.....	Boulder
Weinfeld, Samuel.....	Denver

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FIRST-YEAR CLASS

NAME	RESIDENCE
Alcorn, Floyd Arthur.....	Boulder
Anderson, Cyrus Walfred.....	Denver
Bailey, Bayard Melvin.....	Loveland
Brown, Philip Walling.....	Silverton
Cooper, Henry Lewis.....	Denver
Farrington, Paul Robert.....	Boulder
Goldbloom, Isadore.....	Denver
Harger, Chalmer Middleton.....	Topeka, Kansas
Harner, Clyde Ernest.....	Boulder
Heusinkveld, Gerrit.....	Boulder
Jaffa, Bertram Barr.....	Roswell, New Mexico
Langdon, Erle Edward.....	Buena Vista
Luqueer, Fred Augustus.....	Olathe
McDonald, Roderick James.....	Leadville
Markel, Casper.....	Denver
Maul, Robert Franz.....	Denver
Maynard, Donald Edmund.....	Chicago, Illinois
Nairn, George Waverly.....	Boulder
Perkins, Earl James.....	Denver
Prinzing, Joseph Frederic.....	Denver
Pugh, Charles Glenn.....	Denver
del Rosario, Jose Maria.....	Manila, Philippine Islands
Rosenbloom, Julius Lee.....	Denver
Rumsch, Richard Gustave.....	South St. Paul, Minnesota
Weems, Mary Bryant, Ph.B.....	Denver

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SCHOOL OF LAW

THIRD-YEAR CLASS

NAME	RESIDENCE
Dulweber, Alfred William, A.B.	Boulder
Herrick, Myron Collins, A.B.	Gunnison
Littler, Paul LeBrock, A.B.	Fort Collins
Malone, William Henry, Jr., A.B.	Denver
Sandhouse, Raymond Mirick, A.B.	Boulder
Seeman, Bernard Johnson, A.B.	Denver
Storke, Frederic Putnam, A.B.	Boulder
Stratton, John McKee	Boulder
Sutley, Melvin Lockett, A.B.	Center
Wray, Harry Clinton, A.B.	Colorado Springs

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SECOND-YEAR CLASS

NAME	RESIDENCE
Atencio, José Andres, A.B.	Capulin
Burke, Thomas George, A.B.	Boulder
Fisher, Walter Edward	Aspen
Hanning, Wallace Totten	Denver
Harris, Robert Fitton, A.B.	Boulder
Kelly, Will Abbott	Denver
Kemp, Philip Claris	Denver
Laird, Roy Hummel	Pueblo
Lewis, James David	Niwot
McBride, Edward Henry	Brockton, Massachusetts
McKissack, Harold David	Glenwood Springs
Myer, Erskine Reed, A.B.	Columbus, Ohio
Rowland, Jay Miller	Boulder
Sanborn, Frederick William, Jr., A.B.	Denver
Stephens, Carl James, A.B.	Boulder
Sullivan, Mortimer Francis	Denver
Swindler, Charles Patrick, A.B.	Boulder
Wallace, Blaine Bee	Denver
Wallbank, Stanley Thomas	Chicago, Illinois
Zimmerman, Frederick David	Carbondale

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FIRST-YEAR CLASS

NAME	RESIDENCE
Adams, Cecil Menefee	Boulder
Barnard, John Bell	Boulder
Borland, Eugene Woodburn	Wray
Chapman, Elbridge Gerry, Jr.	Denver
Deatherage, James Parker	Paonia
Donley, Maryelenore	Mount Morrison
Galland, Benjamin Strauss, A.B.	Wilkes-Barre, Pennsylvania
Higgins, Thomas Edward	Silverton
Hoy, George Wellington	Flat River, Missouri
Kohlhausen, Lester Gunter	Raton, New Mexico
Munson, Clinton Gardiner	Oakland, California
Oakes, Harold Steiner	Denver
Parker, Carl Huntington	Clinton, Michigan
Rachofsky, Lester Max	Denver
Reynes, John Francis	Boulder
Scott, Jack Garrett	Denver

NAME	RESIDENCE
Shaw, Earle Lionel.....	Denver
Smith, Feay Burton.....	Montrose
Tinglof, Birger Olaf Ostergrand.....	Boulder
Wild, Claude Charles.....	Moran, Texas

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SPECIAL STUDENTS

NAME	RESIDENCE
Bray, Ross.....	Boulder
Cates, Silas Louis.....	New Castle, Indiana
Devlin, Frank	Wray
Dinneen, Maurice Arthur.....	Cheyenne, Wyoming
Ellis, Edward Henry.....	Boulder
Lane, Albert William.....	Boulder
McBride, John Cumming.....	Winnipeg, Manitoba, Canada
O'Neill, Felix Leo.....	Denver
Ryan, Thomas Henry.....	Denver
Wehrle, John Daniel.....	Center

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COLLEGE OF LIBERAL ARTS

SENIOR CLASS

NAME	RESIDENCE
Accola, Lorena.....	Mendon, Missouri
Adams, Dorothy Eleanor.....	Denver
Beard, Harry Randall.....	Denver
Brown, Philip Walling.....	Silverton
Canter, Alice Valentine.....	Aurora
Chapman, Elbridge Gerry, Jr.....	Denver
Chase, Anna Parsons.....	Denver
Chenault, Ella May.....	Boulder
Clampitt, Hazel Annette.....	Clarendon, Texas
Davis, Bennie Margaret.....	Pueblo
Davis, Ella Clara.....	Boulder
Davis, Monnett Bain.....	Boulder
Dickey, Gladys.....	Windsor
Drach, Gladys Katherine.....	Denver
Drinkwater, Evelyn Louise.....	Denver
Eckel, Maude Louise.....	Boulder
Eckel, Ruth Elizabeth.....	Boulder
Eddy, Henrie-May.....	Boulder
Edmonds, Katharine.....	Boulder
Edwards, Ruth Elizabeth.....	Fort Collins
Ekrem, Nathalie Marie.....	Denver
Farrington, Paul Robert.....	Boulder
Fawcett, Gladys Wilson.....	Boulder
Fiske, Wallace Franz.....	Santa Fe, New Mexico
Fleming, Marjorie Elizabeth.....	Boulder
Fowler, Harry Emerson.....	Iowa City, Iowa
Gabriel, Alna.....	Denver
Gardiner, Dorothy.....	Boulder
Garvin, Mary Adelia.....	Denver
Goss, Lawrence Elmer.....	Olathe
Graves, Herman Coddington.....	Canon City
Hastings, Irene.....	Grant, Nebraska
Heald, Wilfreda Joy.....	Denver
Higgins, Thomas Edward.....	Silverton
Hilderman, Hannah Clara.....	Sterling
Hill, William Henby.....	Greeley
Holman, Corinne Louise.....	Boulder
Housel, Florence Irene.....	Boulder
Howard, Jessie Irving.....	Boulder
Hunter, William Foss.....	Boulder
Jaffa, Bertram Barr.....	Roswell, New Mexico
Kenehan, Grace Menedore.....	Denver
Kluss, Florence Helen.....	Boulder
Kohler, Helen Franc.....	Boulder
Kraemer, Clara.....	Denver
Lewis, Ethel Gertrude.....	Boulder
Lewis, James David.....	Niwot
Long, Ruth Marie.....	Shenandoah, Iowa
Loveless, Josie May.....	Clayton, New Mexico
Low, Gladys Parker.....	Boulder
Luqueer, Fred Augustus.....	Olathe
Lytle, William Clayton.....	Boulder
McCall, Jeanie Rae.....	Palisade
McCormac, Louise.....	Boulder
McIntyre, Paul Joseph.....	Denver
McKibben, Mary Elizabeth.....	Boulder
Martin, Herbert Woods.....	Monte Vista

NAME	RESIDENCE
Marvin, Genevieve Lucille.....	Creede
Maupin, Julia Aline.....	Boulder
Morrison, Lucile May.....	Grand Junction
Nairn, George Waverly.....	Boulder
Neisler, Frank Leslie.....	Boulder
Norton, Irene Achsah.....	Fowler
Nutt, Marian.....	Montrose
Patton, John Adam.....	Boulder
Price, Richard Craig.....	Trinidad
Probst, Doris Elizabeth.....	Tulsa, Oklahoma
Rachofsky, Lester Max.....	Denver
Reichelt, Louise Cowlin.....	Boulder
Richardson, Elizabeth Scott.....	Boulder
Ross, Robert Alexander.....	Fruitvale
Rowland, Ben Wright.....	Boulder
Sargent, Anita Florence.....	Denver
Scott, Jack Garrett.....	Denver
Seubert, Leo.....	Denver
Shen, Mung Chin.....	Kiukiang, China
Smith, Opal.....	Fowler
Stratton, Mary Doris.....	Boulder
Swanson, Elizabeth Alma.....	Georgetown
Tawney, Barbara.....	Grand Junction
Terwilliger, Mabel Fern.....	Boulder
Thompson, Helen Elizabeth.....	Silverton
Tucker, Eleanor Margaret.....	Broomfield
Wallbank, Stanley Thomas.....	Chicago, Illinois
Wells, Mary Rosamond.....	Cheyenne Wells
Wickert, Marie Ellen.....	Boulder
Yates, Lucile.....	Aspen
Yeaman, Lucretia Helm.....	Trinidad

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JUNIOR CLASS

NAME	RESIDENCE
Adams, Reine Nellie.....	Olathe
Adams, Wilbur Wolf.....	Boulder
Anderson, Ruth Adelia.....	Pueblo
Andrews, Hazel Irene.....	Boulder
Atwood, Charlotte Frances.....	Boulder
Bailar, Sadie Frances.....	Salida
Baum, Esther.....	Natoma, Kansas
Baumgartner, Hertha Alice.....	Boulder
Beacom, Dean Nolon.....	Boulder
Beresford, Howard Chester.....	Boulder
Beresford, Paul Converse.....	Boulder
Bevens, Iva Rae.....	Jennings, Michigan
Boyle, Lenore Irene.....	Longmont
Bragdon, Warren Brooks.....	Colorado Springs
Brazil, Hazelle Ethelynn.....	Colorado Springs
Breckenridge, Zella Elizabeth.....	Monte Vista
Brinkley, George Earl.....	Loveland
Campbell, Ethel June.....	Boulder
Carruthers, Zilpha Mary.....	Denver
Cashmore, Clair.....	Denver
Castle, Winifred.....	Delta
Clarke, Francis Palmer.....	Denver
Cluphf, Maud Mae.....	Boulder
Culbertson, Fern.....	Des Moines, Iowa
Dempsey, Florence Elizabeth.....	Belvidere, Illinois
Denham, Leenel.....	Boulder
Douds, Marian.....	Denver
Duggan, Frederick Francis.....	Boulder
Duggan, Isabella Ivy.....	Cripple Creek
Earp, Karl Samuel.....	Boulder

NAME	RESIDENCE
Ellett, Alexander.....	Browning, Missouri
Erickson, Lucile Olga.....	Denver
Espinosa, Rosalina.....	Boulder
Evans, Edwin Van Meter.....	Boulder
Fisher, Mary Elizabeth.....	Akron
Fitzell, Grant Richard.....	Denver
Fye, Verna Belle.....	Boulder
Greig, William McKean.....	Sterling
Haass, Adalia.....	Niwot
Hagee, Gladys Rebecca.....	Denver
Hall, Ada Geneva.....	Fowler
Hall, Lothrop Carleton.....	Boulder
Hall, Mary Stella.....	Boulder
Harger, Chalmer Middleton.....	Topeka, Kansas
Harvey, Horace Granville, Jr.....	Denver
Hendrickson, Victor James.....	Denver
Henry, Orian.....	Boulder
Herman, Mildred.....	Boulder
Hinkley, Henry Lawrence.....	Sterling
Hoover, Kenneth Harry.....	Boulder
Hoskins, Bertha Myra.....	Boulder
House, Floyd Nelson.....	Boulder
Howard, Helen Hunt.....	Rifle
Husted, Harold Reid.....	Denver
Ireland, Gail Leonard.....	Denver
Isbill, Albert Sydney.....	Durango
Kamman, Mildred Eleanor.....	Boulder
Kemp, Philip Claris.....	Denver
Kistler, Ruth.....	Longmont
Kneale, Ada Florence.....	Boulder
Knisell, Katharine Rose.....	Denver
Laird, Roy Hummel.....	Pueblo
Landers, Joseph Samuel.....	Denver
Lenz, Lorraine.....	Chicago, Illinois
Lewis, Rachel.....	Boulder
Linsley, Everett Gray.....	Boulder
Lovelace, Lake.....	Boulder
Lundberg, Helen Maurine.....	Boulder
Lundberg, William Orlando.....	Boulder
McAndrew, Joseph.....	Boulder
McCormac, Jean Evelyn.....	Boulder
McNulty, Catherine Esther.....	Carbondale
MacDonald, Hazel Irene.....	Boulder
MacKay, William Hector.....	Denver
Marinoff, Oscar Jacob.....	Denver
Marshall, Willis Mitchell, Jr.....	Denver
Martin, Alice Herschel.....	Denver
Maxwell, Hazel.....	Denver
Mead, Roger Bernard.....	Denver
Monical, Doska Wilhelmina Elizabeth.....	Pueblo
Morgan, Olive Elizabeth.....	Denver
Morley, Harold Thompson.....	Denver
Moudy, Mary Catherine.....	Creede
Mumma, Bertha Freeman.....	Boulder
Musser, Georgie Belle.....	Denver
Myers, Donald John.....	Boulder
Norvell, Philip David.....	Boulder
Oakes, Harold Steiner.....	Denver
Oren, Elma Tomena.....	Stoughton, Wisconsin
Parsell, Wesley Manning.....	Canadian, Texas
Patton, Edwin Fritz.....	Boulder
Paulson, Paul Alvin.....	Colorado Springs
Pehlstrom, Ruth Cymbeline.....	Boulder
Pehlstrom, Vera Esther.....	Boulder
Perini, Vincent Charles, Jr.....	Denver
Pile, John Charles.....	Boulder

NAME	RESIDENCE
Pratt, Margaret Mary.....	Boulder
Probst, Fredrica Sebald.....	Tulsa, Oklahoma
Probst, Karl Max.....	Tulsa, Oklahoma
Proffitt, Hazel Mae.....	Denver
Prouty, Julia Catherine.....	Denver
Pulliam, Artie Majors.....	Loveland
Purcell, Robert Hart.....	Tolland
Red, Mary Bowers.....	Mexia, Texas
Reed, Homer James.....	Boulder
Remington, Paul Ellsworth.....	Denver
Rennie, Waldo Edward.....	Denver
Richardson, Helen Mary.....	Boulder
Richardson, Robert Mark, Jr.....	Boulder
Riede, Anna Grace.....	Canon City
Roberts, Viola Marguerite.....	Greeley
Robinson, Alcyon.....	Denver
Roe, Glenwood Coblenz.....	Boulder
Roulston, Margaret Edna.....	Boulder
Ruggles, Lloyd Calvin.....	Monett, Missouri
Ryan, William Joseph.....	Boulder
Sawhill, John Alexander.....	Boulder
Saunders, Ray Walter.....	Boulder
Shattuck, Rebekah.....	Boulder
Shaw, William Robert.....	Aspen
Sheldahl, Louis Rees.....	Buena Vista
Sheldon, Mabel.....	Eldora, Iowa
Shideler, Jay Emerald.....	Boulder
Skerry, Leslie Marshall.....	Denver
Slane, Helen.....	Rocky Ford
Soldevilla, Romulo Teodulo.....	Gasan, Tayabas, P. I.
Southwell, Fred Bryan.....	Maltland, Missouri
Spencer, Charlotte Belle.....	Iowa City, Iowa
Spray, Emily Timberlake.....	Denver
Sullivan, Emma Bernice.....	Grand Junction
Sutherland, Mae Elizabeth.....	Idaho Springs
Temple, Juanita.....	Johnstown
Thomas, Dyer.....	Boulder
Townsend, Onabelle.....	Boulder
Trovillion, Genevieve Carolyn.....	Boulder
Vivian, Chauncey Higgins.....	Golden
Warner, Arthur Howard.....	Carroll
Warrington, Jesse.....	Boulder
Wells, Horace Palmer.....	Denver
West, Frank Herschel.....	Pueblo
West, Nellie.....	Pueblo
White, Winifred Harris.....	Boulder
Whitehead, Richard Wilson.....	Breckenridge
Wild, Claude Charles.....	Moran, Texas
Wilkin, Frank Josef.....	Denver
Willison, George Findlay.....	Denver
Willson, Kenneth Mack.....	Lusk, Wyoming
Wolf, Clayton Samuel.....	Fort Collins
Wright, Gertrude Lucile.....	Grand Junction
Wright, John Evan Miles.....	Boulder
Yeaman, Helen Mary.....	Trinidad

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SOPHOMORE CLASS

NAME	RESIDENCE
Abbott, Henry Brown.....	Brighton
Abrahamson, Mary Lovisa.....	Boulder
Adams, Albyn Worthington.....	Jacksonville, Illinois
Adams, Charles Chenault.....	Boulder
Adams, Victor Kirk.....	Boulder
Anderson, Florence Marion.....	Denver
Anderson, Sister Mildred.....	Pueblo

NAME	RESIDENCE
Aurand, Esther Isabella.....	Denver
Bagley, Helen Elizabeth.....	Pueblo
Barnard, Albert.....	Rollinsville
Bennett, Audrey.....	Denver
Bennett, Chauncey Aubrey.....	Boulder
Berman, Hyman.....	Boulder
Blackburn, Dorothy.....	Boulder
Blackman, Bernice Carolyn.....	Denver
Block, Ernestine Louise.....	Denver
Bolles, Helen Louise.....	Denver
Bonn, Dorothy Elizabeth.....	Canon City
Borden, Neil Hopper.....	Boulder
Brandhorst, Lillie Elizabeth.....	Boulder
Brown, Edna Mabel.....	Boulder
Brown, Katherine.....	McGregor, Texas
Brown, Olive Rosamond.....	Louisville
Brubaker, Genevieve Bernice.....	Victor
Bryant, Carl.....	Ordway
Buchanan, Lucile Berkeley.....	Denver
Burke, A. Catherine.....	Washington, Indiana
Burke, John, Jr.....	Boulder
Carder, Vester.....	Keenesburg
Carmichael, Emmett Bryan.....	Shelbyville, Missouri
Carroll, William Francis.....	Colorado Springs
Chapin, Lucy Katharine.....	Boulder
Chapman, Ralph.....	Clay Center, Kansas
Chisholm, Theodore Frank.....	Denver
Cleveland, Marjorie.....	Boulder
Cleveland, Nellie Charline.....	Boulder
Coffman, Max Jenner.....	Denver
Cohn, Regina Louise.....	Boulder
Collins, Melvin James.....	Creede
Cook, Hazel Irene.....	Denver
Coolidge, Cole.....	Boulder
Crabtree, Laura Belle.....	Boulder
Creager, Nellie.....	Rocky Ford
Cross, Jean Augusta.....	Loveland
Curtis, Gwendolyn Ann.....	Castle Rock
Danielson, Ralph Wesley.....	Basalt
DeLongchamps, Mildred.....	Antonito
DeVol, Austin Orne.....	Boulder
Dinsmore, Naomi Louisa.....	Pueblo
Dinsmore, Sarah Elizabeth.....	Greenville, Texas
Dobbs, Louise-Josephine.....	Beatrice, Nebraska
Donnan, John Knox, Jr.....	Austin, Texas
Dooley, Ferne Aldine.....	Le Roy, Illinois
Duggan, Thomas Foster.....	Yazoo City, Mississippi
Dupree, James William.....	Tampa, Florida
Dyche, Schubert Reilley.....	Pueblo
East, Bessie Belle.....	Trinidad
Eastman, Leslie.....	Boulder
Elam, Roy J.....	Enid, Oklahoma
Ellsberg, William.....	Denver
Everett, Clifford Delmar.....	Boulder
Factorovich, Michael.....	Buffalo, New York
Faus, Robert Bert.....	Boulder
Fordham, Winifred.....	Glenwood Springs
Gedney, Beatrice.....	Boulder
Gentry, Glowrene.....	Pond Creek, Oklahoma
Glover, Isabel Eliza.....	Aurora, Nebraska
Godfrey, Marguerite Adkins.....	Denver
Goebel, Rudolph William.....	Tyrone, New Mexico
Gore, Zoe.....	Breckenridge
Gould, Albert Jay, Jr.....	Denver
Grandjean, Horton Isaac.....	Mayne
Griffith, John Lindsey.....	Denver

NAME	RESIDENCE
Grigsby, Joseph Dewey	Wray
Gruver, Margaret Ella	Monte Vista
Hale, Dorothy Prescott	Denver
Hand, Lauren Chatfield	Gypsum
Hanger, Paul Cornelius	Kansas City, Missouri
Harrington, John	Cheyenne, Wyoming
Harris, Margaret	Fulton, Missouri
Hart, Verling Kersey	Cheyenne, Wyoming
Hay, Mary Mostyn	Ouray
Hickey, Frank Meredith	Denver
Hopkins, Andrew Simpson	Edgewater
Hopkins, Faye Marie	Denver
Huff, James McDonald, Jr.	Belvidere, Illinois
Hunt, Marion Louis	Boulder
Hurlburt, Helen Alverda	Fruita
Jenkins, Katherine	Denver
Johnson, Frederick William	Carey, Texas
Johnston, Mary Ruth	Idaho Springs
Kappler, Edwin Otto	Denver
Keely, Thomas, Jr.	Denver
Keim, Marie	Denver
Kenning, Mary Cecilia	Manson, Iowa
Kimball, Neil West	Golden
Kirkendall, Ruth Esther	Fruita
Kistler, Wilbur Denio	Longmont
Klene, Lorine Loring	Fort Collins
Klene, Vivian Claire	Fort Collins
Knowles, Samuel Etnyre	Briggsdale
Knowlton, Donald Ryder	Denver
Kochevar, Mathew John	Crested Butte
Kozina, Joseph Edward	Boulder
Kroeger, Irma Lillian	Sedalia
Kurz, Clarence Haver	Delta
Kurz, Martha	Bowling Green, Missouri
Lauderdale, William Henry	Tama, Iowa
Leatherman, Alma Helen	Lamar
Lenz, Philip George	Chicago, Illinois
Lind, Rose	Boulder
McClellan, George Russell	Enid, Oklahoma
McCoy, Freda Mabel	Boulder
McDonald, June Alice	Longmont
McFarland, Burrus	Boulder
McGinnies, Nina Elizabeth	Boulder
McGinnis, Paul	Boulder
McKelvy, Lawrence	La Junta
McLean, Gladys Evans	Breckenridge
McMillen, Mildred	Boulder
MacColl, LeRoy Archibald	Idaho Springs
Markey, Joseph James	Denver
Martin, Larissa Eugenia	Denver
Mason, Marian	Boulder
Mellman, Isaac	Denver
Mellow, Ruth Ethel	Russell Gulch
Moore, David Earl	Idana, Kansas
Mortensen, Anna Kathrine	Stenstrup, Denmark
Mulvihill, Harry Marcus	Denver
Mundell, Vada Edith	Ordway
Myers, John Clark	Greeley
Neely, Lenore Elizabeth	Boulder
Neill, Ella Marjorie	Greeley
Nelson, Margaret	Denver
Norris, Fred Lee	Boulder
Olinger, Elgin Dutton	Franklin, Illinois
Olson, Richard Gustave	Denver
Olson, Vera Anna	Boulder
Parfet, Ray Theodore	Golden

NAME	RESIDENCE
Pattison, Lucile.....	Colorado Springs
Penney, George Benjamin.....	Pueblo
Pettibone, Harriet Nixon.....	Burlington, Iowa
Pinger, Allen Wainwright.....	Leadville
Pitkin, Amy.....	Denver
Pittman, Jo.....	Boulder
Powers, Nellie Sabena.....	Lafayette
Prey, DuVal.....	Denver
Purmort, Eunice Beryl.....	Boulder
Rapp, Herbert Timothy.....	La Junta
Read, Margaret.....	Boulder
Reed, Charles Emmett.....	Boulder
Reed, Irma Lenore.....	Jerome, Idaho
Reed, Russell Mullette.....	Boulder
Reiber, Lea Alfred.....	Bunkie, Louisiana
Reynolds, Burton Ralph.....	Greeley
Richey, Marie Jaqueline.....	Leadville
Robinson, Carlton Crew.....	San Acacio
Rose, Clarence William.....	Boulder
Rose, Lelia Mabel.....	Pueblo
von Rosenberg, Helen.....	Glenwood Springs
Sanger, Homer Festus.....	Boulder
Scarborough, Bryan Freeman.....	Denver
Scheidegger, Elvin Franklin.....	Fort Morgan
Schiller, Edna Elizabeth.....	Fort Morgan
Schomburg, Thomas Whigham.....	Denver
Seeberg, Abraham.....	Denver
Sells, Virgil Emerald.....	Denver
Shaw, Harriet Bliss.....	Cripple Creek
Sherman, Marguerite Elizabeth.....	Boulder
Shideler, Francis Marvin.....	Mancos
Shute, Percy DeLaney.....	Boulder
Sibbald, Reginald Spalding.....	Boulder
Simpson, Harlow Marion.....	Fort Morgan
Simpson, Olive Margaret.....	Fowler
Smith, Irving Stanton.....	Pueblo
Solt, Helen.....	Boulder
Somerville, Edwin Slaven.....	Limon
Spencer, Etta Pearl Conger.....	Boulder
Steinhoff, Lawrence Henry.....	Fort Morgan
Stevenson, Nellie Hurlbut.....	Burlington, Iowa
Stratton, Marjorie Allen.....	Boulder
Swanson, Walfred William.....	Braham, Minnesota
Swayne, Ida Loyd.....	Boulder
Teal, Annabel Carolyn.....	Boulder
Thomas, Colin.....	Denver
Thompson, Elizabeth Alice.....	Holyoke
Thompson, Harold Clark.....	Greeley
Tidwell, Reuben Bruce.....	Denver
Toomey, Petronella Burnadette.....	Aspen
Torgerson, Marion Louise.....	Grand Forks, North Dakota
Tucker, Jasper Lindsey.....	Lamar
Tuffy, Arla Evangeline.....	Grand Junction
Unger, Helen Sara.....	Florence
Vincent, Leona Elizabeth.....	Victor
Vornholt, Mary Amanda.....	La Crosse, Wisconsin
Walsh, Walter Michael.....	Denver
Walton, Edith Gertrude.....	Denver
Wear, Harry H.....	Meeker
Webb, Charles Wilson.....	Denver
Webb, Helen Manker.....	Boulder
Webster, Irma Mae.....	Elbridge, New York
Welch, Donald Louis.....	Fort Collins
Welsh, Donald.....	Denver
Weltman, Moses.....	Denver
Wheatley, George.....	Boulder

NAME	RESIDENCE
White, Brenda Anne.....	Pueblo
White, Vivian.....	Boulder
Wilkes, Pauline Adrienne.....	Waco, Texas
Williams, William McKinley.....	Elbert
Willison, Andrew Brunton.....	Denver
Wilson, Ethel Josephine.....	Boulder
Wilson, Jean.....	Boulder
Wilson, Sylvia.....	Montrose
Wittemyer, Florence Helen.....	Boulder
Wood, Gracia Pope.....	Elmdale, Kansas
Wright, Laurence Edward.....	Boulder
Writer, Harold Deane.....	Denver
Writer, Russell Mapes.....	Denver
Yegge, William Bernard.....	Wiggins
Young, Isabel Scott.....	Walsenburg
Zinn, Vivian.....	Hawkesville, Ontario, Canada

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FRESHMAN CLASS

NAME	RESIDENCE
Abell, Wendell Edward.....	Riley, Kansas
Adams, Grace Charlotte.....	Denver
Adamson, Ruby Kendall.....	Boulder
Alexander, Clark Taylor.....	Flagler
Allen, Viola.....	Steamboat Springs
Amsbary, Katharine Eldridge.....	Delta
Andersen, Fred Albert Swan.....	Denver
Anderson, Lois Dufur.....	Denver
Andrew, Donald.....	Longmont
Andrew, Dorothy Turrell.....	Boulder
Arkwright, Evelyn Swinhoe.....	Colorado Springs
Atkins, Elmer Verdon.....	Longmont
Atwood, Henry.....	Tecumseh, Nebraska
Ayres, Amy Jean.....	Durango
Bagley, Louise.....	Pueblo
Bailey, Blanche.....	Boulder
Bailey, Mariam.....	Lawrence, Kansas
Bailey, Morton Shelley, Jr.....	Denver
Baird, Charles Lafayette.....	Monte Vista
Baird, Ralph Orris.....	Monte Vista
Baker, Edith Martha.....	Batavia, Illinois
Barlow, Mary Bell.....	Beverly, West Virginia
Barnie, Carl.....	Hotchkiss
Barth, Maurice.....	St. Johns, Arizona
Barton, Frederick Armine.....	Wray
Bassett, John Alexander, Jr.....	Alamosa
Bawden, Gertrude Burness.....	Central City
Baxter, Alfred Whitcomb.....	Longmont
Baxter, Gladys Elizabeth.....	Rocky Ford
Bayless, Pansy.....	Boulder
Bean, Helen DeKalb.....	Hot Springs, South Dakota
Beede, Paul Leslie.....	Loveland
Bell, Hazel Eulalia.....	Silverton
Bellman, Ruth.....	Boulder
Bennett, Hazel Philena.....	Boulder
Benson, Laneta.....	Denver
Bigham, Helen Gould.....	Glenwood Springs
Bimson, Edith Ellen.....	Berthoud
Boegel, Blanche.....	Franktown
Bohn, Margaret May.....	Longmont
Bone, Robert Laughlin.....	Monte Vista
Boot, Helen.....	Denver
Bordahl, Gertrude Inga.....	Boulder
Bowler, Mary Angela.....	Denver
Brace, Harriet Taylor.....	Boulder

NAME	RESIDENCE
Breckenridge, Robert Glenn, Jr.	Monte Vista
Briggs, Clark William.	Denver
Briggs, Robert Ernest.	Cedaredge
Brooks, Arta	Boulder
Buchanan, Harriet Adelia.	Sterling
Buerger, Julius Albert.	Denver
Buffington, Frank Mason.	Boulder
Burke, Robert Emmet.	Boulder
Bussell, Walter Leland.	Mount Moriah, Missouri
Campbell, Dorothy May.	Denver
Campbell, Pearl	Loveland
Campiglia, Anthony, Jr.	Denver
Candor, Catharine Emma.	Denver
Carr, Dorothy Edith.	Meeker
Cary, Robert James.	Denver
Charter, Wilma	Loveland
Chatfield, Elmina Dickinson.	Littleton
Christensen, Bryant Elliott.	Boulder
Christensen, Clarence Melvin.	Boulder
Christopher, Beulah	Dover
Claer, Annetta	Colorado Springs
Claer, Felicita	Colorado Springs
Clark, Ella E.	Greeley
Clayton, George Victor.	Norton, Kansas
Coakley, Harry Elmer.	Denver
Coates, Elizabeth Lola.	Granada
Coghlan, Anne Theoline.	Kankakee, Illinois
Cole, William Kenneth.	Longmont
Coles, Muriel Elizabeth.	Grand Junction
Connell, Mary Ellen.	Grand Valley
Cox, Harriette Agnes.	Denver
Critchlow, Arthur Burtis.	Meeker
Crouch, Marjorie Schoppe.	Fort Morgan
Curry, Margaret Eleanor.	Boulder
D'Autremont, John Victor.	Denver
Davis, Dorothy	Longmont
Davis, William Powell.	Sterling
Dawson, Geraldine	Denver
Deane, Richard Daniel.	Boulder
DeFrantz, Earle Hugo.	Denver
DeLaney, Juanita Gertrude.	Holly
Denslow, Rachel Irene.	Denver
DeRose, Howard Robert.	Denver
Dickason, Deane Henry.	Denver
Dimmitt, Dorothy Margaret.	Boulder
Donaldson, Frances	Boulder
Donehue, Frances Selina.	Denver
Donley, Margaret Irene.	Denver
Donley, William Guy.	Shepherdstown, West Virginia
Douglas, Frederic Huntington.	Evergreen
Douglas, Verne Kennyth.	North Freedom, Wisconsin
Dow, Edith Walker.	Salina, Kansas
Downing, Richard	Denver
Downing, Robert Harris.	McCook, Nebraska
Downs, Doris	Boulder
Drach, Gertrude Magdalene.	Denver
Duce, Katherine Frances.	Boulder
Durward, Robert Harland.	Boulder
Dutcher, Donald Grant.	Niagara Falls, New York
Dwyer, Emmet Vincent.	Creede
Dwyer, Paul Keefe.	Creede
Eads, Perry Raymond.	Colorado Springs
Easton, Evan Luther.	Boulder
Ebener, Irene	Denver
Ebert, Alice Ladd.	Boulder
Eddy, Priscilla Henrietta.	Boulder

NAME	RESIDENCE
Edwards, Darrell Beach.....	Snyder
Elias, Ralph Richard.....	La Crosse, Kansas
Elliott, Ruth	Merino
Emerman, Abe Harvern.....	Erie, Pennsylvania
Engle, Arthur John.....	Wellington, Kansas
Espinosa, Juan Baptista.....	Del Norte
Everett, Lucella Althea.....	Boulder
Fenton, Ward Caldwell.....	Rocky Ford
Fleming, Helen Margorie.....	Denver
Fleming, Nancy Amelia.....	Boulder
Flower, Leo Frederick.....	Montrose
Forsman, Hulda Hortense.....	Pueblo
Forsyth, Harry Pugh.....	Boulder
Forsythe, Blanche Shirley.....	Boulder
Forsythe, Edith May.....	Boulder
Franklin, Lafayette.....	Denver
Franklin, Walter Byron.....	Fort Morgan
Fraser, William George.....	Denver
Freeman, Charles Ballou.....	Denver
Freeman, Paul	Denver
Fulghum, Carl Whitney.....	Glenwood Springs
Fulmer, Fred Roy.....	Colorado Springs
Galligan, Mary Margaret.....	Boulder
Gelwick, Calvin Cyrus.....	Jacksonville, Florida
Ginther, Sarah	Denver
Gittner, Wilma Leone.....	Denver
Glenn, Dorothea Reger.....	Denver
Grant, Kenneth Ernest.....	Leadville
Gray, Helen Eliza.....	Gunnison
Gray, Homer Warrington.....	Gunnison
Griffing, Sarah Elizabeth.....	Fort Morgan
Griffith, Charles Albert.....	Holly
Griffith, Helen Jessie.....	Denver
Griffith, Mary Lois.....	Estes Park
Grimes, Gladys	Denver
Griswold, Florence Jane.....	Boulder
Griswold, Myrtle Emma.....	Sterling
Gross, Marie Louise.....	Boulder
Haener, Esther Virginia.....	Denver
Hair, James William.....	Denver
Hale, Marjory King.....	Denver
Ham, Della Pauline.....	Hasty
Hanks, Bryan Cayce.....	Gatesville, Texas
Harris, Elmer Homer.....	Boulder
Harris, Mary Frances.....	Boulder
Hartman, Katherine.....	Longmont
Harvey, Edward Lee.....	Denver
Harvey, Effie Marie.....	Boulder
Hawkyard, Stella Grace.....	Olathe
Heilman, Arthur Grant.....	Monte Vista
Henderson, James Stewart.....	Montrose
Herrick, David Bryan.....	Gunnison
Herzer, Minnie May.....	Boulder
Hill, Thomas Elroy.....	Rocky Ford
Hinman, Neta Dee.....	Austin
Hoffman, James Robert.....	Littleton
Hogan, Thomas Patrick.....	Gunnison
Hogsett, Annabel	Brush
Holcomb, Janet Lillian.....	Boulder
Holmes, Charles Martin.....	DeBeque
Holmes, Jessie	Greeley
Hood, Gladys.....	Canon City
Huff, Mary Freeman.....	Belvidere, Illinois
Hughes, Alvina Russell.....	Durango
Hull, Olive Blanche.....	Boulder
Hummel, Elizabeth Sophia.....	Boulder

NAME	RESIDENCE
Hunt, Faith Bennett.....	Pueblo
Husted, Helen May.....	Denver
Jackson, Sam Broadus.....	Denver
Jankovsky, Joseph Charles.....	Sedgwick
Jenks, Henry Irving.....	Denver
Johnson, Elsa Marie.....	Boulder
Johnson, Faith Winifred.....	Denver
Johnson, Ida May.....	Holly
Jones, Charles Edwin, Jr.....	Plattsburg, Missouri
Jones, Ella Mae.....	Center
Jordan, J. Frank.....	Cheyenne, Wyoming
Joy, Mildred Rosalind.....	Meeker
Kelley, Aleda May.....	Denver
Kelly, William Andrew.....	Colorado Springs
Keyes, Homer Richards.....	Denver
Keys, Kenneth Florence.....	Beloit, Kansas
Kiker, Sada.....	Boulder
Kime, Herbert Rolf.....	Hot Springs, South Dakota
Kistler, Georgie Aloise.....	Denver
Kitch, Donnell Francis.....	Cheyenne Wells
Koenigs, Frank Jerome.....	Boulder
Lang, Margery.....	Boulder
Lauritzen, Edris Adell.....	Chicago Heights, Illinois
LeRoy, Irving Thomas.....	Streator, Illinois
Leuer, Aloysius Henry.....	Boulder
Levinson, Samuel Keever.....	Denver
Lindberg, Eugene Theodore.....	Pueblo
Lindsey, Gordon Winsor.....	Denver
Livingston, Gertrude.....	Windsor, Missouri
Lizotte, Alice Mary.....	Denver
Loan, Leonard Francis.....	Denver
Logan, Mary Phyllis.....	Denver
Lovejoy, Margaret.....	Jefferson, Iowa
Lyman, Mildred Harriett.....	Boulder
Lyster, Elsie Muriel.....	Greeley
McCormac, Alice Irene.....	Boulder
McFerson, Grant.....	Boulder
McGhee, George C.....	Williamsport, Ohio
McGowan, Elizabeth Allen.....	Boulder
McHatton, Stanley.....	Gypsum
McKay, Elizabeth Gleaning.....	Boulder
McNulty, Anna Harriet.....	Carbondale
Macfarlane, Hattie Jean.....	Denver
Macgregor, Vanda Maud.....	Golden
MacRae, Catherine.....	Glenwood Springs
Madden, Louis Edward.....	Denver
Major, Donald Merritt.....	Three Rivers, Michigan
Marihugh, Bernadeen Josephine.....	Idaho Springs
Marinoff, Lillian.....	Denver
Marmein, Hazel Loraine.....	Fremont, Illinois
Marr, Mary Annette.....	Denver
Marshall, Dorothy L.....	Delta
Martin, Lillian.....	Brighton
Mathers, Caress Mae.....	Boulder
Matson, Jessie Agnes.....	Denver
Merrill, Helen.....	Lamar
Merryfield, Mabel Pearl.....	Fowler
Meyer, Freda Emma.....	Olathe
Michael, Maude Alice.....	Denver
Middlekauff, Donald Frank.....	Denver
Miles, Helen Dean.....	Denver
Miller, Clyde William.....	Brighton
Miller, Grace Helen.....	Platteville
Miller, John St. Clair.....	Brighton
Mills, Glenn Everett.....	Boulder
Mitchell, William Cunningham.....	Denver

NAME	RESIDENCE
Moore, Ame Ruth.....	Aspen
Moore, Ethelyn Angeline.....	Longmont
Morente, José.....	Pinamalabayam, Mindoro, P. I.
Morford, Grace Edith.....	Palisade
Morgan, Lydia.....	Louisville
Morrison, Lewis Richard.....	Denver
Morrison, Millard Alford.....	Grand Valley
Moulton, Venus.....	Cripple Creek
Murphy, John Russell.....	Hotchkiss
Murray, Paul Vincent.....	Denver
Nelson, George Richard.....	Denver
Nelson, Hilda Caroline.....	Denver
Nelson, Ruth.....	Delta
Nicholson, Coralie Rozelle.....	Denver
Nims, Valiant Gale.....	Greeley
Noggle, Alva Robinson.....	Fort Morgan
O'Day, George William.....	Lafayette
O'Dea, Helen Louise.....	Leadville
O'Flaherty, May Belle.....	Boulder
Ogden, Laura Walworth.....	Boulder
Olds, Fred Hartman.....	Denver
O'Malia, Regina Catherine.....	Leadville
Ordoñez, David Espiritu.....	Villasis, Pangasinan, P. I.
Parko, Vera Mae.....	Creede
Parker, Bertha Victoria.....	Boulder
Patterson, Lucy Mary.....	Fort Morgan
Perine, Helen.....	Boulder
Perrin, James Burris.....	Denver
Perry, Benjamin Francis.....	Boulder
Peyton, Marguerite Mary.....	Boulder
Phelps, Clayton Loyal.....	Grinnell, Iowa
Phillips, Roy Arvin.....	Denver
Pickrell, Imogene.....	Middlebury, Indiana
Price, Cecil Bradford.....	Denver
Price, Mary Ellen.....	Cripple Creek
Purvis, Maggie May.....	Las Animas
Puryear, Evard.....	Council Bluffs, Iowa
Reed, Mary Louise.....	Boulder
Regan, John Lester.....	Creede
Rethlefsen, Helen.....	Boulder
Reynolds, Henry Etta.....	Boulder
Rickelton, Howard Anderson.....	Olathe
Ripley, Stuart Allen.....	Boulder
Ripperton, Ruth.....	Denver
Roberts, Doris.....	Denver
Rodas, Pedro Padilla.....	Sta. Cruz, Marinduque, P. I.
Rohwer, Hester Marian.....	Boulder
Royce, Lourie Merle.....	Boulder
Runyan, Loma Margaret.....	Boulder
Rush, William Shafter.....	Minturn
Rutherford, Ione May.....	Leadville
Ryan, Mary Elizabeth.....	Boulder
Sammons, Charles McKinley.....	Breckenridge
Samuelson, Carl Eric.....	Las Animas
Sanborn, William Dalzell.....	Denver
Sandhouse, Grace Adelbert.....	Boulder
Saunders, Josephine Mildred.....	Boulder
Schaffer, Herold Morritz.....	Rochester, New York
Schaper, Robert Henry.....	Havelock, Nebraska
Scheidegger, Lloyd Wesley.....	Fort Morgan
Schmid, Norman Charles.....	Denver
Scott, Blanche Altha.....	North Bend, Nebraska
Scovil, Gertrude Arena.....	Saguache
Sellars, Marie.....	Boulder
Shattuck, Henrietta.....	Boulder
Sieman, Isabelle Louise.....	Fort Lupton

NAME	RESIDENCE
Sills, Carlton Thomas	Gunnison
Skiff, Marjorie	Boulder
Slane, Ruth	Saguache
Sloan, Helen Roberta	Durango
Smercheck, Bernice Grace	Boulder
Smith, Edmund Geoffrey	Denver
Snider, James Birch	Denver
Sowter, Grace	Boulder
Spencer, Floyd Albert	Boulder
Spencer, Richard Carleton	Boulder
Spratlen, Frank Perin, Jr.	Denver
Sproul, Ralph Godfrey	Englewood
Staley, Wesley Bryan	Arvada
Sterling, Marcella	Denver
Stevens, La Verna	Denver
Stone, Edna	Pueblo
Strange, John Krueger	Boulder
Sullivan, Mary Theresa	Denver
Sweet, Irena Elladee	Boulder
Sylvester, Alfred Tennyson Daniel	Grover
Tanner, John Porter	Boulder
Tarkoff, Harry	Boulder
Tarkoff, Irma	Boulder
Terwilliger, Mary Elizabeth	Boulder
Tincher, Hugh	Fulton, Missouri
Tippett, Donald Harvey	Boulder
Traxler, Ralph Newton	Lamar
True, Margaret Josephine	Boulder
Tuchock, Wanda Rosalyn	Boulder
Turnbull, Mildred Galloway	Leadville
Unfug, August Theodore, Jr.	Walsenburg
Updike, Mary Ella	Trenton, New Jersey
Van Deventer, Gale Albert	Loveland
Van Voorhis, Elizabeth Wilhelmina	Arvada
Van Zant, Helen Marie	Longmont
Vogt, Emma Rowena	Denver
Vowell, Catherine Elizabeth	Littleton
Wade, Margaret	Boulder
Wagner, Henry Joseph	Boulder
Walker, Ambrose Carlton	Denver
Walter, Dorothy	Denver
Walter, Emily Josephine	Denver
Watson, Bess	Eaton
Watt, Marion Virginia	Denver
Webster, Eugene Butler	Shawnee, Oklahoma
Webster, Margaret Aileen	Elbridge, New York
Weitzel, Louis Elmer	Pueblo
Westerlund, Ruby Luella	Elliott, Iowa
Westinghouse, Clarence Donald	Colorado Springs
White, Helen	Boulder
White, Helen Maud	Denver
White, James Herschel	Detroit, Michigan
White, Wilford Lenfestey	Boulder
Whitker, Royce Albert	Bowling Green, Ohio
Whitney, Caroline Elizabeth	Boulder
Wiesman, Harry Bernhardt	Denver
Wild, Leila Belle	Moran, Texas
Willits, Helen	Phoenix, Arizona
Willson, Fred Brooks	Lusk, Wyoming
Wilson, Carlisle May	Mound City, Kansas
Winegar, Alfred Fred	Greeley
Winter, Henry Abraham, Jr.	Denver
Wittemyer, John	Boulder
Wolf, Thomas Olin	Riverton, Wyoming
Wood, Armilda Jane	Fowler
Woodard, Amy Elizabeth	Saguache

NAME	RESIDENCE
Woodward, Gretta Lucetta.....	Brush
Woolard, Edgar William.....	Boulder
Wray, Ralph Merritt.....	Olathe
Wright, Agnes Mack.....	Boulder
Wright, Homer	Boulder
Yant, Florence Gail.....	La Junta
Zweigart, Jennie Marie.....	Maysville, Kentucky

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SPECIAL STUDENTS

NAME	RESIDENCE
Anderson, Livingston Lene Culbertson.....	Boulder
Brenizer, Elizabeth, A.B.....	Broken Bow, Nebraska
Cassell, James Sherman.....	Denver
Cleveland, Ethel Chenault.....	Boulder
Craghead, Retta Frances.....	Boulder
Franks, Hattie May.....	Boulder
French, Harrison Bryan.....	Boulder
Gale, Ethel Blanche.....	Boulder
Girardeau, Claude Monica.....	Boulder
Ledesma, Teodorico.....	Silay ou Negros, P. I.
Noxon, Albert Irving.....	Boulder
Porter, Nellie Pearl.....	Galva, Kansas
Reinhold, Dean Tripler.....	Montrose
Roberts, Elizabeth Cecilia.....	Tempe, Arizona
Rohde, Amanda Rhoda.....	Denver
Rupert, Edna Browning.....	Denver
Shufelt, Harlan Jeremiah.....	Boulder
Smith, Irvin Lee.....	Boulder
Smylie, Robert Sayre, Jr.....	La Veta
Starr, James Franklin.....	Boulder
Strong, Florence Nightengale.....	West New York, New Jersey
Tafel, Marguerite, A.B.....	Boulder
Thompson, Clara Gussefeld.....	Boulder
Timmons, Lewis Ellsworth.....	Riley, Kansas
Wagner, William Albert.....	Boulder
Wallace, Nan Ethel.....	Boulder
Winkler, Paul Bernhardt.....	Saalfeld, Germany

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COLLEGE OF ENGINEERING

SENIOR CLASS

NAME	COURSE	RESIDENCE
Beattie, Wayne Stephenson.....	M.E.	La Salle
Berry, Standish Edmund.....	E.E.	Boulder
Brierley, George Cecil.....	E.F.	Boulder
Brockway, Waldo Emerson.....	C.E.	Boulder
Brunton, Harold James.....	M.E.	Denver
Burgess, Warren Childs.....	M.E.	Boulder
Clymer, Charles Clarence.....	E.E.	Denver
Coit, Norman Hubert.....	E.E.	Denver
Collins, Arthur Gus.....	M.E.	Salida
Curry, Charles Kenneth.....	C.E.	Boulder
Curtis, Howard Gray.....	C.E.	Rapson
Dunford, Samuel Williams.....	C.E.	Walsenburg
Dwyer, Martin Joseph.....	C.E.	Creede
Eastman, Harold Lee.....	E.E.	Boulder
Ekrem, Thomas Clarence.....	E.E.	Denver
Fertig, John Landon.....	M.E.	Montrose
Foster, Bryant Edgar.....	M.E.	Roswell, New Mexico
Hardenbrook, Morse Evens.....	E.F.	Boulder
Hibbard, Lester Carpenter.....	C.E.	Boulder
Hinkle, Allen Ellsworth.....	E.E.	Berthoud
Johnson, Joseph Buskirk.....	M.E.	Denver
Kettle, William Charles.....	C.F.	Westcliffe
Kraxberger, Ernest Frank.....	C.E.	Peez
Krueger, George Henry.....	M.E.	Denver
Leroy, Victor Eugene.....	E.E.	Denver
Lutz, Thomas Edward.....	C.E.	Mapleton, Iowa
McCrum, Douglas Stuart.....	E.E.	Oneonta, New York
Marcus, Jerome Stanley.....	Ch.E.	Longmont
Mathew, Steere de Montfort.....	E.E.	Denver
Milroy, James.....	E.E.	Denver
Morrison, William Scott.....	E.E.	Denver
Perreten, Arnold Ervin.....	E.E.	Bogard, Missouri
Platts, Harlow Case.....	M.F.	Boulder
Rader, Cranston Bourquin.....	E.E.	Denver
Rapp, Earl Alfred.....	C.E.	Denver
Reed, Stanley Morton.....	E.E.	Boulder
Schwend, John William.....	M.E.	Ouray
Serat, George William.....	C.E.	Denver
Shimeall, Herbert Ray.....	E.E.	Boulder
Short, Philip Breen.....	E.E.	Buena Vista
Shugren, Maurice Ulysses.....	E.E.	Denver
Smith, Horace Malcolm Root.....	E.E.	Denver
Strauss, Herman Gross.....	C.F.	Denver
Tashima, Yoshio.....	E.E.	Brighton
Van Arsdall, Leland Burdette.....	C.E.	Denver
Woolley, Frederic Hartzell.....	E.E.	Denver
Wynn, Hubert Alexander.....	E.E.	Durango

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JUNIOR CLASS

NAME	COURSE	RESIDENCE
Allen, Everett Wait.....	M.E.	Kalona, Iowa
Anderson, Joseph Nathaniel.....	C.E.	Denver
Apel, Philip George.....	C.E.	Fort Lupton
Aulsebrook, William John.....	E.E.	Elbert
Bessee, Charles Webster.....	M.E.	Denver
Black, Paul Ashby.....	E.E.	Rocky Ford

NAME	COURSE	RESIDENCE
Blake, Albyn Bernard.....	Ch.E.	Denver
Boylan, James Philip.....	C.E.	Denver
Brown, Charles Matthew.....	C.E.	Denver
Brubaker, William Felker.....	C.E.	Boulder
Buckley, John Harold.....	M.E.	Longmont
Burlingame, Charles Raymond.....	M.E.	Denver
Catlett, Robert Larkin.....	E.E.	Trinidad
Creglow, Frederick Delmar.....	C.E.	Burlington
Croft, Huber Ogilvie.....	M.E.	Denver
Devalon, Earle Waldo.....	E.E.	Golden
Dungan, Paul.....	Ch.E.	Boulder
Eckel, Raymond Earl.....	C.E.	Denver
Eddy, Philip Eugene.....	M.E.	Boulder
Ellison, Murl J.....	E.E.	Crook
Elzi, Joseph Andrew.....	E.E.	Boulder
Eschenburg, Herman Marinus.....	C.E.	Boulder
Flint, Harry Milton.....	Ch.E.	Boulder
Fraser, Verness Percy.....	E.E.	Boulder
Gillett, Clarence Herbert.....	Ch.E.	Denver
Gittings, William Norton.....	E.E.	Rifle
Greenawalt, Arlo Cornell.....	Ch.E.	Denver
Harris, Albert George.....	M.E.	Aspen
Harvey, Eugene Cochrane.....	C.E.	Boulder
Haworth, Paul.....	C.E.	Boulder
Hewitt, Harold Gleason.....	Ch.E.	Denver
Hinkley, Tracy Luther.....	Ch.E.	Sterling
Hum, Justus Clifford.....	C.E.	Boulder
Hyatt, Ernest Fletcher.....	Ch.E.	Alamosa
Johnson, Algon Benjamin.....	C.E.	Collbran
Johnson, Lester Bryan.....	E.E.	Durango
Johnson, Levant.....	M.E.	Georgetown
Kerr, Francis Payne.....	E.E.	Denver
Kurtz, Guy Orth.....	M.E.	Fort Morgan
Leppla, Walter John.....	M.E.	Denver
Loper, William Bryan.....	E.E.	Montrose
Love, Harry Allan.....	E.E.	Steamboat Springs
McCoy, Lewis Jefferson.....	E.E.	Boulder
Mellet, Will Wood.....	Ch.E.	Boulder
Merritt, Charles Wendell.....	E.E.	Denver
Merritt, Robert Wendell.....	E.E.	Denver
Morrow, Walter Thomson.....	C.E.	Colorado Springs
Murphy, James Malcolm.....	M.E.	Clifton
Neuman, Robert, Jr.....	E.E.	Victor
Nord, Arthur William.....	E.E.	Salida
Orr, Hugh N.....	Ch.E.	Cripple Creek
Orris, James Ralston.....	Ch.E.	Pueblo
Patterson, Stanley.....	C.E.	Denver
Pierce, Charles Brown.....	E.E.	Denver
Purinton, Roy Lewellyn.....	E.E.	Denver
Randall, John Dudley.....	M.E.	Boulder
Richardson, George Sherwood.....	C.E.	Boulder
Rifkin, Meyer.....	C.E.	Denver
Rust, Edgar Hoyt.....	E.E.	Boulder
Rymer, Donald Hugh.....	E.E.	Edgewater
Sanders, Forest Wayne.....	Ch.E.	Durango
Scherer, Edward Henry.....	M.E.	Billings, Montana
Schloss, Charles Murdock.....	E.E.	Woodville, Mississippi
Sears, Harold Thompson.....	M.E.	Boulder
Steinmetz, William John.....	C.E.	Denver
Stratton, Walter Scott, Jr.....	C.E.	Boulder
Tandy, Ben George.....	E.E.	Fort Worth, Texas
Thomas, Edwin Abbott.....	E.E.	Denver
Titley, Thomas Tracy.....	E.E.	Denver
Warner, Arthur Howard.....	E.E.	Carr
Wood, Carl.....	E.E.	Denver

SOPHOMORE CLASS

NAME	COURSE	RESIDENCE
Ammon, Charles Laurence.....	E.E.	Edmonds, Washington
Anderson, Albert Severin.....	E.E.	Denver
Ball, Wright Owings.....	C.E.	Meeker
Barr, Harold Alfred.....	C.E.	La Junta
Barrett, Willis Chapel.....	C.E.	Sheridan, Wyoming
Beckett, Rexford Everett.....	E.E.	Lafayette
Bennet, Harold Housley.....	C.E.	Denver
Brock, Jesse Raymond.....	E.E.	Kimberly, Idaho
Burghardt, King.....	C.E.	Denver
Campbell, Ernest Glenn.....	Ch.E.	Boulder
Canis, Frank Herald.....	C.E.	Longmont
Casey, Robert.....	Ch.E.	Boulder
Catterson, Frehn Hutchins.....	Ch.E.	Tucumcari, New Mexico
Clifford, Joseph Michael.....	E.E.	Derby
Cobb, Howard Leo.....	Ch.E.	Boulder
Coffman, Max Jenner.....	Ch.E.	Denver
Costello, George Frances.....	Ch.E.	Denver
Coulson, Donald Chaney.....	Ch.E.	Durango
Crispelle, Kenneth Guy.....	E.E.	Leadville
Cuthbertson, Robert Emmet.....	Ch.E.	Denver
Danielson, Gus Edward.....	M.E.	Boulder
Devenish, George Bushe.....	M.E.	Denver
Dobbins, Eugene Victor.....	Ch.E.	Denver
Dobler, William Christopher.....	Ch.E.	Nucla
Dunlap, Paul Meredith.....	C.E.	Kalona, Iowa
Easton, Frank Artemus.....	E.E.	Denver
Eaves, Elsie.....	C.E.	Idaho Springs
Elliott, John Paul.....	C.E.	Boulder
Froese, Erhard Albert.....	Ch.E.	La Junta
Fulenwider, Harold Gaither.....	Ch.E.	Denver
Graves, Carl Osborn.....	M.E.	Canon City
Gray, Wharton Kinsey.....	M.E.	Denver
Harlin, Eugene Lorraine.....	E.E.	West Plains, Missouri
Harmon, Earl Leonard.....	C.E.	Lafayette
Hedcock, Wendell Thomas.....	C.E.	Denver
Herman, Harry Henry.....	M.E.	Boulder
Hoffman, Roy August.....	E.E.	Denver
Holm, Alvin John.....	Ch.E.	Denver
Jones, David Lewis.....	Ch.E.	Denver
Jones, Walter Clyde.....	M.E.	Boulder
Kane, Raymond Joseph.....	C.E.	Denver
Kelley, Frank Joseph.....	Ch.E.	Leadville
Kelsey, Harold Martin.....	E.E.	Denver
Killian, George Leslie.....	E.E.	Denver
Kimsey, William Alexander.....	M.E.	Denver
Kretschmar, George.....	E.E.	Boulder
Lalli, Anthony Stephen.....	E.E.	Louisville
Lawrence, Wylie Earl.....	Ch.E.	Boulder
Lee, William Russell.....	E.E.	Lamar
Lendেকে, Hugo Maria Robert.....	C.E.	Georgetown
Lewis, Edwin Constant.....	E.E.	Boulder
Lindsay, James Armour.....	Ch.E.	Denver
Macken, John Emmett.....	E.E.	Denver
Malixi, Juan.....	C.E.	Balanga, Bataan, P. I.
Manning, Arthur Edmund.....	E.E.	Denver
Matthews, Thomas Ignatius.....	E.E.	Denver
Mechling, Eugene Burlingame.....	E.E.	Denver
Mount, Earl Stanley.....	M.E.	Denver
Nelson, Wesley Robert.....	C.E.	Norwood
Nock, Henry Thomas.....	Ch.E.	Denver
Olson, Louis Bernhardt.....	Ch.E.	Boulder
Oviatt, Edward William.....	C.E.	Loveland
Page, Henry Anthony.....	E.E.	Denver
Phelps, Colin Eastwood.....	M.E.	Broomfield

NAME	COURSE	RESIDENCE
Pinger, Allen Wainwright.....	M.E.	Leadville
Pratt, Stuart Wilkins.....	Ch.E.	Boulder
Reames, Eldred Strong.....	C.E.	Fruita
Saunders, Glen.....	C.E.	Boulder
Schuch, Leland Stanford.....	E.E.	Creede
Serat, Mortimer Edgerton, Jr.....	C.E.	Denver
Skinker, Murray Fontaine.....	E.E.	Denver
Smith, Terryl Clarence.....	E.E.	Boulder
Spence, Dewitt Talmage.....	M.E.	Louisville, Nebraska
Stribling, George Epler.....	M.E.	Denver
Tipton, Royce J.....	C.E.	Crestone
Vicklund, Claude Alven.....	M.E.	Denver
Vicklund, Enoch Rhinehart.....	M.E.	Denver
Wendell, Lay Arthur.....	Ch.E.	Milwaukee, Wisconsin
Whitney, Russell Lee.....	E.E.	Boulder
Wilsey, Donald Albert.....	M.E.	Boulder
Woodworth, Dean Thorpe.....	Ch.E.	Custer, South Dakota
Worthington, Biddle Wilkinson.....	Ch.E.	Birmingham, Alabama
Young, Benjamin Uel.....	E.E.	Evans

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FRESHMAN CLASS*

NAME	RESIDENCE
Alford, Rucl Stillman.....	Castle Rock
Allen, Harold.....	Cripple Creek
Allen, Harold Joseph.....	Denver
Anderson, Burton Elmer.....	Boulder
Babcock, Jasper Dwight.....	Elkton
Baird, Ralph Orris.....	Monte Vista
Baker, Gano Reeder.....	Denver
Bartlett, Earl Alfred.....	Denver
Baum, Arthur William.....	Fowler
Beresford, Kenneth Edwin.....	Boulder
Berky, William Atlee.....	Denver
Bracy, William Haynes.....	Boulder
Braukman, Clarence Augustus.....	Denver
Brickham, Nelson Henry.....	Denver
Brickler, Alexander Jesse.....	Denver
Brinkley, Bert.....	Estes Park
Brown, Henry Isaac.....	Greeley
Burk, Harold DeWitt.....	Boulder
Burke, Edward Raymond.....	Denver
Burke, Jeffrey Francis.....	Denver
Burkhard, Myron J.....	Florence
Carpenter, Edwin Gilbert.....	Mancos
Cary, Robert James, Jr.....	Denver
Caughey, Clarence Harold.....	Boulder
Chandler, Harold William.....	Denver
Chapin, Dell.....	Meeker
Clarke, Thomas Howard, Jr.....	Eureka
Comer, Leon John.....	Greeley
Davis, Morris Edward.....	Cheyenne, Wyoming
Degering, Carl Adolph.....	Florence
DeSelle, George Wesley.....	Denver
Devalon, George Clarence.....	Golden
Doble, John.....	Placerville
Dougherty, Vivian Channing.....	Salida
Dustin, William Harold.....	Elkton
Efaw, Earl Owen.....	Fowler
Elder, Andrew Darwin.....	Denver
Espinosa, Gilbert Antonio.....	Boulder
Faris, James Theodore.....	Denver
Farrar, Clyde Leo.....	Myrtle Creek, Oregon

*Freshman Engineering students are not classified as to course.

NAME	RESIDENCE
Ferris, Stephen Hunt.....	Carthage, Illinois
Ford, John Lewis.....	Meeker
Gerard, Kenneth.....	Gypsum
Gillett, Ivan Parkin.....	Cleveland, Oklahoma
Gilmore, Richard Frank.....	Salida
Gothberg, Edwin George.....	Casper, Wyoming
Grove, Arthur Edwin.....	Grand Junction
Hadley, Ralph Harold.....	Artesia, New Mexico
Haffey, Patrick Joseph.....	Durango
Hall, Fenwick Livsey.....	Boulder
Hansen, Arnold Adolph.....	Denver
Harshman, Frank.....	Wiggins
Havens, George Douglass.....	Denver
Haynes, Meryl Dexter.....	Burlington
Henderson, Clyde Patterson.....	Denver
Hill, Ralph Marcus Douglas.....	Albuquerque, New Mexico
Horton, Carroll Tunis.....	Denver
Irish, Ernest Lloyd.....	Fort Dodge, Iowa
Iverson, Conrad Marcellus.....	Longmont
Jewett, John Quincy.....	Denver
Johnson, Kent Wilbur.....	Boulder
Jones, Edward Maurice.....	Rockvale
Katzman, Samuel.....	Denver
Kelty, William Francis.....	Denver
Kiefer, Clarence Vincent.....	Fruita
Killgore, Anthony Jay.....	Denver
Kincaid, Clifford Allen.....	Pueblo
Kinkel, Carl Voss.....	Fort Morgan
Kintz, George Morton.....	Denver
Klemme, Claude Chase.....	Boulder
Kneale, William Christian.....	Boulder
Kretschmer, Charles, Jr.....	Pueblo
Kuppinger, Clifford Isaac.....	Mason City, Iowa
Leach, Joe Robert.....	Boulder
Lillie, Charles William.....	Denver
Lind, Raymond William.....	Denver
Loilo, Andres Ramirez.....	Bulan, Sorsogon, P. I.
Loveland, Harry G.....	Boulder
Lyons, Alva Frank.....	Durango
McInerney, Francis Xavier.....	Cheyenne, Wyoming
McNerny, Townsend.....	Denver
MacDonnell, Albert Sneed.....	Austin, Texas
Major, William Dewey.....	Telluride
Marcus, Herbert.....	Longmont
Mellors, Thomas.....	Boulder
Melton, Lou Alta.....	Boulder
Merrill, Richard Lee.....	Lamar
Morehouse, Harry Clarence.....	Denver
Morrison, Richard Sykes.....	Denver
Murray, Lee James.....	Denver
Page, Jackson Whitfield.....	Yazoo City, Mississippi
Patterson, Ernest George.....	Fort Morgan
Peterson, Charles William.....	Denver
Phillips, Harry Joseph.....	Boulder
Poteet, James Harold.....	Denver
Pott, Louis Morgan.....	Leadville
Pyle, Clark.....	Boulder
Read, Clinton Fields.....	Pittsfield, Massachusetts
Reade, Arthur Cale.....	Denver
Rice, Harold Frederick.....	Ouray
Rixford, Charles Orville.....	Denver
Russell, Robert John.....	Denver
Ruth, Obed Edward.....	Halstead, Kansas
Sanders, Vernon Heber.....	Durango
Saunders, Pascho Bushnell.....	Delta
Scudder, Ward Felix.....	Denver

NAME	RESIDENCE
Seelinger, Glenn Harry.....	Greeley
Sellers, Jesse	Boulder
Sherman, George Raymond.....	Boulder
Simmons, William Peter.....	Denver
Smith, McLane, Jr.....	Boulder
Sommer, Armand	Denver
Spates, Alfred	Boulder
Stonebraker, William John.....	Boulder
Storrie, Hugh Rose.....	Denver
Stubbs, Frank Whitworth.....	Ridgway
Taylor, Robert Hugh.....	Denver
Tovani, Ernest	Denver
Trowbridge, Roland Orrison.....	Leadville
Tucker, Sam Sherman.....	Grinnell, Iowa
Vagnino, Louis Salvatore.....	Denver
Vincent, John Thomas.....	Victor
Wilcox, Joseph Ashley.....	Hesperus
Willoughby, Orville Philip.....	Denver
Wolff, Hiram Bradley.....	Denver
Woodworth, Ernest Fenwick.....	Minco, Oklahoma
Wylam, Clarence Chamberlain.....	Boulder

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SPECIAL STUDENTS

NAME	RESIDENCE
Ball, James Ogden.....	Crested Butte
Boase, Arthur James.....	Boulder
Chambers, Chester Lyle.....	Eagle Creek, Oregon
Reed, Harold Sylvester.....	Philadelphia, Pennsylvania
Wolf, Frank	Boulder

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COLLEGE OF PHARMACY

FOURTH-YEAR CLASS

NAME	RESIDENCE
Bigelow, Ruth	Denver
Dean, Mattie Elizabeth, Ph.C.....	Boulder
Loomis, Russell Newton, Ph.C.....	Denver
	—3

THIRD-YEAR CLASS

NAME	RESIDENCE
Bechmann, Agnes Pauline, Ph.C.....	Creede
	—1

SECOND-YEAR CLASS

NAME	RESIDENCE
Bigelow, Lucretia	Denver
Bigelow, Ruth	Denver
Brady, Joseph Aloysius.....	Empire
Brandhorst, Henry William.....	Boulder
Feldman, Pincus	Denver
Keating, Jane Louise.....	Georgetown
Moule, Albert A.....	Ouray
Redding, Edwin Wright, Jr.....	Idaho Springs
Romano, Anthony Clement.....	Louisville
Sanders, Joseph.....	Primghar, Iowa
Scott, Everett Lee.....	Lipscomb, Texas
Scott, Walter Milton.....	Lipscomb, Texas
	—12

FIRST-YEAR CLASS

NAME	RESIDENCE
Deardorff, Harold Paul.....	Brush
Engle, Frank Nelson.....	Colorado Springs
Freshman, Mark Myron.....	Victor
Judelovitz, Simon	Denver
	—4

SPECIAL STUDENT

NAME	RESIDENCE
Cornils, Herman	Denver
	—1

TRAINING SCHOOL FOR NURSES

THIRD-YEAR CLASS

NAME	RESIDENCE
Crain, Gladys Dae.....	Niotazi, Kansas
Giger, Emma	Boulder
Henderson, Florence Isobel.....	Central City
Jacobsen, Olga Amalia.....	Fowler
Sheckell, Adda May.....	Keithsburg, Illinois
—5	

SECOND-YEAR CLASS

NAME	RESIDENCE
Abbett, Nellie Blanch.....	Brighton
Abel, Fern Viola.....	Sheridan, Wyoming
Anderson, Grace	Boulder
Glover, Isabel Eliza.....	Aurora, Nebraska
Milburn, Cecile Anna.....	Boulder
—5	

FIRST-YEAR CLASS

NAME	RESIDENCE
Anthony, Margaret Elizabeth.....	Pueblo
Carter, Sue.....	Coffey, Missouri
Detweiler, Hallie Mae.....	Limon
Guthrie, Florence Lu Ella.....	Clay Center, Kansas
Hard, Valo E.....	Longmont
Heckman, Anna.....	Grand Junction
Hopfinger, Eva Bertha.....	Leadville
Richburg, Lilla.....	Winnsboro, Texas
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SUMMER SESSION STUDENTS, 1916

NAME	RESIDENCE
Abbott, Sabra Jane, Ph.B.	Wood River, Nebraska
Abrahamson, Mary	Boulder
Accola, Lorena	Mendon, Missouri
Adams, Dorothy Eleanor	Boulder
Adams, Julie Regula	Chicago, Illinois
Agnew, Gertrude Blanch	Fullerton, Nebraska
Agnew, Myrtle Mary	Fullerton, Nebraska
Alexander, Bess, A.B.	Guide Rock, Nebraska
Allen, Mattie C.	Hot Springs, South Dakota
Allsup, Irma	Waelder, Texas
Alsop, Mildred Agnes	Wakefield, Kansas
Ambler, Amy Caroline	Chandler, Oklahoma
Ames, Anna Talbertt, Pd.B.	Warrensburg, Missouri
Andersen, Agnes Marie	Chicago, Illinois
Anderson, Anna, A.B.	Chicago, Illinois
Anderson, Cornelia V.	Davenport, Iowa
Anderson, Edith Wilhelmina	Scandia, Kansas
Anderson, Ernest Mitchell, B.S.	Hancock, Missouri
Anderson, Frank William, B.S.	Boulder
Anderson, Mabel May, A.B.	Gas, Kansas
Anderson, Myrtle Estella, A.B.	Trinidad
Andrews, Hazel Irene	Boulder
Andrus, Dora Eva	Boulder
Angell, Grace Ruby	Independence, Kansas
Arheart, Delta	Delphos, Kansas
Arnold, Vae, Pd.B.	Kansas City, Missouri
Ashley, Glaister Herod, A.B., M.D.	Boulder
Ashley, May Prince	West Helena, Arkansas
Atkinson, Ada L., A.M.	Omaha, Nebraska
Axelson, Alphyld Josephine, A.B.	Moline, Illinois
Baker, Ella Brown	Bucklin, Kansas
Ball, Mary Ethel, A.B.	Boulder
Barnett, Hazel	Paris, Texas
Barr, Le Rea	Greenville, Illinois
Barrett, David Dean, A.B.	Boulder
Barry, Helen Ann	Horton, Kansas
Barry, Myrtle Elizabeth	Maywood, Nebraska
Bartron, Ruth Irene	Denver
Bass, L. Myrtle	Hattiesburg, Mississippi
Bast, Steele, A.B.	Sedalia, Missouri
Bates, Roscoe	Claude, Texas
Battles, Carroll David	Tulia, Texas
Baumgartner, Hertha	Boulder
Baxter, Ethel Celene	Kinsley, Kansas
Beardsley, Kathleen Marguerite, A.B.	Wichita Falls, Texas
Beatty, Florence	Lake Charles, Louisiana
Beegle, Myra, Pd.B.	Kansas City, Missouri
Beeman, Emily Myrtle	Terrell, Texas
Beery, Joseph Homer	Boulder
Beichley, Laura May	Salina, Kansas
Belew, Ivy Mae	Clarendon, Texas
Bell, Daisy	Jetmore, Kansas
Belser, Mary Ernestine	Boulder
Benscheidt, Ella	Hutchinson, Kansas
Benscheidt, Elsie	Hutchinson, Kansas
Bentley, Charles Percival	Cleveland, Ohio
Bentley, Margaret	Coffeyville, Kansas
Berg, Anna Matilda, A.B.	Fruita
Bernard, Robert J.	Claremont, California

NAME	RESIDENCE
Berry, Clarence Wilmer, B.S.	Waxahachi, Texas
Berry, Letha Alys	Kingsville, Missouri
Bertsch, Wilhelmina Fredericka	Mayetta, Kansas
Bickett, Rose Gertrude	Oklahoma City, Oklahoma
Black, Myrtle Cora	Kansas City, Kansas
Black, Ruby Aurora	Thornton, Texas
Blair, Mary Elizabeth	Cripple Creek
Blake, Albyn Bernard	Denver
Blake, Helen, Pd.B.	Denver
Blakely, Cora	Texarkana, Arkansas
Blakeslee, Opal Frances	Enid, Oklahoma
Blue, Maude Evelyn	Lawton, Oklahoma
Bolan, Beatrice	Dorchester, Massachusetts
Boltz, Mabel McCammon	Corsicana, Texas
Boot, Sue	Denver
Borem, Lillie Mae	Ennis, Texas
Bounous, Reuben David	Monett, Missouri
Bowen, Robert Mortimer, B.S.	Denver
Bowlin, Lou Belle	Garden City, Missouri
Bowman, Charles Otto	Linwood, Kansas
Boyle, James Philip	San Benito, Texas
Boyle, Lenore	Longmont
Boynton, Nannie, B.S.	Waco, Texas
Brace, Harriet Taylor	Boulder
Bradford, Lenore	Boulder
Bradford, Margaret Archer	San Antonio, Texas
Brainerd, Ida Elizabeth	Pueblo
Bretnall, Reginald John	Boulder
Brewer, Edith Mae	Muskogee, Oklahoma
Bridgam, Erna	Chicago, Illinois
Bright, Florence Zetilla	Corsicana, Texas
Bristow, Florence Lois	Pryor, Oklahoma
Brown, Ada Belle	Douglas, Wyoming
Brown, Betty	St. Joseph, Missouri
Brown, Bruce J., Pd.M., A.B.	Rich Hill, Missouri
Brown, Juliet Amanda, P.Be.	Cartersville, Missouri
Brown, Katherine	McGregor, Texas
Brown, Marie Alice Crum, A.B.	Cartersville, Missouri
Brown, Marion Dorothy	Bartlesville, Oklahoma
Brown, Martha Avery, B.S.	Chicago, Illinois
Brown, Naomi Harrah	St. Joseph, Missouri
Brown, Porter	McGregor, Texas
Browning, Ethel May, A.B.	Linden, Indiana
Brubaker, William Felker	Boulder
Brumitt, Hannah Ellen	Hays, Kansas
Buchanan, Lucile Berkeley, Pd.B.	Denver
Buckland, Clara Elizabeth	Hutchinson, Kansas
Buckner, Sue Elizabeth, A.B.	Wichita, Kansas
Burke, Margaret Elinor	San Antonio, Texas
Burke, Margaret Florence	San Antonio, Texas
Burke, Maude Estelle, A.B.	Boulder
Burke, Ruth Genevieve, A.B.	Boulder
Burnett, Flora, Pd.B.	Liberty, Missouri
Burnett, Wilsie Elizabeth, Pd.B.	Liberty, Missouri
Burns, Hattie Evelyn	Millington, Tennessee
Burns, Lillie May, Pd.B.	Millington, Tennessee
Bushey, Allen Hopkins, A.B.	Manzanola
Bushey, Clifford A.	Manzanola
Buss, Ida Helen	Ravenna, Nebraska
Butcher, Estelle, A.B.	Sedan, Kansas
Butchers, Lillian M., B.S.D.	Carthage, Missouri
Butler, Una Zee	Bartlesville, Oklahoma
Butts, Mary Ann	Dearborn, Missouri
Butts, Olie	Dearborn, Missouri

NAME	RESIDENCE
Cahn, Estelle	Beaumont, Texas
Cain, Lulu	Augusta, Illinois
Calvert, Blanche Alfaretta, A.B.	Des Moines, Iowa
Campbell, Dorothy May	Denver
Campbell, Effie Belle	Blockton, Iowa
Campbell, Eula Helen	Ft. Worth, Texas
Campbell, Lloyd Hubbard, A.B.	Boulder
Campbell, Myrtie Thompson, A.B.	Denver
Capps, Daphna Jule	Arcadia, Kansas
Caraway, Lennie Bel	Hutchinson, Kansas
Carey, Nina Gladys, B.D.	Sacramento, California
Carl, Amy Florence	Harlan, Iowa
Carney, Maurie Vera	Blairstown, Missouri
Carrington, Dimple	Denver
Carver, Frances	Petersburg, Illinois
Casey, Robert	Boulder
Casey, William V	Boulder
Cashmore, Clair	Denver
Cassell, Mabel Viola	Houston, Texas
Cassidy, Florence M.	Pittsburg, Pennsylvania
Castle, Bess Oneda	Dallas, Texas
Castle, Winifred, Pd.B.	Delta
Caughlan, Rebecca Dorothy	East St. Louis, Illinois
Chambers, Bird	Humboldt, Kansas
Chambers, Nettie	Humboldt, Kansas
Chao, Yuan Chen	Golden
Chatham, Stella May, Pd.B.	La Monte, Missouri
Chincholle, Jeanne	Denver
Church, Catherine	Cowgill, Missouri
Claassen, Herman Albert	Cantonment, Oklahoma
Clampitt, Hazel	Clarendon, Texas
Clark, Agnes Jane	Junction City, Kansas
Clark, Esther M., Pd.B.	St. Johns, Michigan
Clark, Grace Evelyn	Littleton
Clarke, Alice Mary, Ph.B.	Wellington, Kansas
Clem, Alice	Cimarron, Kansas
Cleveland, Mattie Hope, A.B.	Boulder
Cleveland, Nellie Charline	Boulder
Clopton, William Thomas, B.Pe.	Aldrich, Missouri
Cluph, Gertrude Mary	Boulder
Cockerill, Cecil, A.M.	Boonville, Missouri
Coit, Norman Hubert	Denver
Coldwell, Iris Vera	Mazomanie, Wisconsin
Coldwell, Valeria Geneva, B.S.	Mazomanie, Wisconsin
Collins, Ethel Margaret	Wichita, Kansas
Conner, Fern, A.B.	Emporia, Kansas
Conybeare, Lillian Grace, A.B.	Central City, Nebraska
Cook, Martha Eleanor	Lake Charles, Louisiana
Cook, Nellie Catherine	Independence, Kansas
Cooke, Gertrude Adell, A.B.	Denver
Cooper, Josephine Elizabeth	Independence, Kansas
Cornell, Benjamin David, A.B.	Olathe
Cornell, Rebecca	Wakefield, Kansas
Couch, Gertrude Martha	York, Nebraska
Cox, Etta Olive	Goodnight, Oklahoma
Crabtree, Dixie Christine	Lawton, Oklahoma
Crandall, Edith Mary	Boulder
Crawford, Cora Shults	Beaumont, Texas
Crocker, Alma Helen	Campbell Hill, Illinois
Crocker, Mary Esther	Denver
Cross, Bertram Josiah	Glenwood Springs
Crouch, Mabel Gertrude	St. Louis, Missouri
Culler, Martha Loyetta, A.B.	Lucas, Ohio
Culp, Margaret, Pd.M.	Alton, Missouri

NAME	RESIDENCE
Cummings, Grace	McAlester, Oklahoma
Curl, Beulah	Boulder
Curran, Jessie Martyn	Garden City, Missouri
Curry, Mary Alice, A.B.	Laurel, Mississippi
Curry, Julia Elizabeth	Elkpoint, South Dakota
Curry, Rose Lawrence, A.B.	Denver
Curry, Zettie, A.B.	Laurel, Mississippi
Cuthbertson, Helen Scott, A.B.	Pueblo
Cuthbertson, Lulu Lee, A.B.	Pueblo
Cutright, Lois, Ph.B.	Peoria, Illinois
Daeschner, August, Ph.M.	Del Norte
Dahlgren, Mabel Margaret	Kansas City, Kansas
Daigh, Delma Louisa	Oklahoma City, Oklahoma
Daily, Mary Jane	Hartford City, Indiana
Damm, Lillie Elizabeth	Joplin, Missouri
Davies, Grace Belle	Mitchell, South Dakota
Davis, Anna Lee	Miami, Oklahoma
Davis, Arlene Lola	Winfield, Kansas
Davis, Bennie Margaret	Pueblo
Davis, Lula-Glee	Winfield, Kansas
Day, Mary Sarilda	Boulder
Dayton, Laura May, A.B.	Chicago, Illinois
Dayton, Susan La Rue, A.B.	Paris, Illinois
DeLay, Florence Grace, A.B.	Kansas City, Missouri
Denham, Leenel	Boulder
De Vore, Roxy	Winfield, Kansas
Diemer, George Willis, B.Pe.	Excelsior Springs, Missouri
Dillon, Lourissie	Holden, Missouri
Disney, Lewin Magdalene	Sapulpa, Oklahoma
Disney, Mary Pearl	Stuart, Iowa
Dixon, Margaret	Falladega, Alabama
Dooley, Anna Elizabeth	St. Joseph, Missouri
Dooley, Mayme Ellen	St. Joseph, Missouri
Douden, Ola May, Pd.B.	Boulder
Dow, Edith Walker	Salina, Kansas
Draney, Thomas Leo	Omaha, Nebraska
Draper, Merle Alto	Edison, Nebraska
Duggar, Benjamin M., Ph.D.	St. Louis, Missouri
Dull, Joseph Delbert, B.S. in Ed.	La Plata, Missouri
Dumm, Frank Milton	Belton, Missouri
Dummit, Howard Marbut, B.Pe.	Monett, Missouri
Dunlap, Bird Cousar	Clarksville, Arkansas
Earp, Karl Samuel	Boulder
Eastman, Harold Lee	Boulder
Eckel, Ruth Elizabeth	Boulder
Eckhardt, Elizabeth Catherine	Toledo, Ohio
Edmiston, Nan G.	Dallas, Texas
Edwards, Hazel Deuel, A.B.	Vernon, Texas
Edwards, Jeffie	Wagoner, Oklahoma
Eggenberger, Anna L.	Odell, Illinois
Ehlers, Lulu Laura	Carthage, Missouri
Eiker, Bess Hamilton, A.B.	Sparta, Illinois
Ekrem, Thomas Clarence	Denver
Ellett, Alexander	Browning, Missouri
Ellin, Dorothy Therese	Cincinnati, Ohio
Elmer, Zela, A.B.	Omaha, Nebraska
Elwell, Sara Dorathea, A.B.	Pueblo
Endicott, John Vernon, Pd.B.; B.L.	Smithville, Missouri
Enelow, Helen	Chicago, Illinois
Epperson, Nellie Marie, A.M.	Aspen
Eubank, Mayme Ethel	Kit Carson
Evans, Lenna Ruth	Monroe City, Missouri
Everhart, Minnie Lee, B.Pe.	Pickering, Missouri
Ewing, Laura L., A.M.	Topeka, Kansas

NAME	RESIDENCE
Fahey, Helen S.....	Guthrie, Oklahoma
Farrington, Paul Robert.....	Boulder
Faulk, Besse Neill, Pd.B.....	Carrollton, Missouri
Feingold, Marcus, M.D.....	New Orleans, Louisiana
Felible, Hazel Elizabeth.....	Braman, Oklahoma
Fenner, Inez Gertrude.....	Pittsburg, Kansas
Ferguson, Jean May, Ph.B.....	Chicago, Illinois
Fickett, Fred Wildon, Jr., A.B.....	Tucson, Arizona
Fischer, Doris.....	Quincy, Illinois
Fisher, Gladys Adel, A.B.....	Pattonsburg, Missouri
Fitzell, Grant Richard.....	Denver
Flanders, Lillian Jane.....	Lake Charles, Louisiana
Fleming, Marjorie Elizabeth.....	Boulder
Fletcher, Chester Kimes, A.B.....	Pueblo
Foley, Virginia M.....	Pittsburgh, Pennsylvania
Forbes, Jennie Millicent.....	Denver
Ford, Charles Clayton.....	Coon Rapids, Iowa
Forman, Frank Shane, A.B.....	Robinson, Illinois
Franklin, Daisy Ermin.....	St. Joseph, Missouri
Franks, Hattie May.....	Boulder
Freeman, Eliot Nichols.....	Sugar City
Frink, Myrtle May.....	Centralia, Illinois
Frink, Nannie.....	Centralia, Illinois
Frizzell, Julia W., A.B.....	Halstead, Kansas
Fuerst, Sidney Marsden.....	Flushing, Long Island
Gallochar, Mary.....	Houston, Texas
Gannon, Florence, A.B.....	Enid, Oklahoma
Gardner, Bertha Viola.....	Kingman, Kansas
Garrett, Annette Marie.....	Lawrence, Kansas
Garrett, Martha M.....	Ft. Dodge, Iowa
Garrett, Violetta Belle, A.M.....	Lawrence, Kansas
Garrison, Beatrice.....	Beaumont, Texas
Gaunt, Galen.....	Longmont
Gedney, Beatrice Kathryn.....	Denver
George, Helen G.....	Holden, Missouri
Gerhart, Myrtle Louise.....	Kansas City, Missouri
Giboney, Alice C.....	Carlisle, Indiana
Giffen, Ernest K., Ph.B.....	La Junta
Giles, Eva.....	Alvarado, Texas
Gilmer, Olive Esther.....	Webb City, Missouri
Girault, Thomas Lackey.....	Plainview, Texas
Girault, Willie Davis, B.L.....	Plainview, Texas
Gittings, Daniel Carter.....	Baltimore, Maryland
Glasgow, Mattie May.....	Leavenworth, Kansas
Glidden, Ethel Evelyn.....	Kansas City, Kansas
Golden, Anna Mabel.....	Du Quoin, Illinois
Golden, Christine.....	Du Quoin, Illinois
Good, Alvin, A.B.....	Little Rock, Arkansas
Good, Elsie May.....	Cimarron, Kansas
Goodhand, Marie.....	Ord, Nebraska
Goodyear, Bessie, A.B.....	Wichita, Kansas
Gorman, Mabel Olive, A.B.....	Springfield, Missouri
Goss, Lawrence Elmer.....	Boulder
Graves, Herman Coddington.....	Canon City
Green, Bessie R., A.M.....	Ivesdale, Illinois
Green, Mary Edith.....	Pittsburg, Kansas
Green, Mary J. Louise.....	Kansas City, Kansas
Greene, Adelbert Jay, A.B.....	Boulder
Gregg, Mildred Lucile.....	Boulder
Gregory, Wheeler Russell, A.B.....	Kansas City, Missouri
Gross, Marie Louise.....	Boulder
Gross, Max.....	Lyons
Gundy, Madge Kathrine, A.B.....	Danville, Illinois
Guthrie, Robert Lee.....	Denver
Gwyn, Mary M.....	Gainesville, Texas

NAME	RESIDENCE
Hagler, Ruby Belle.....	Salina, Kansas
Hahn, Edna	Minneapolis, Kansas
Hall, Carrie	Pierce, Nebraska
Hall, Gail	McPherson, Kansas
Halley, Emma	Dallas, Texas
Halsell, Louis Daniel.....	Oklahoma City, Oklahoma
Hamel, Delphine Alberta, A.B.....	St. Louis, Missouri
Hampton, Clinton Alphonso.....	Boulder
Hanson, Grace	Westfield, Indiana
Hanson, Martha	Bridgeport, Connecticut
Hanson, Virginia Ethel.....	Edison, Nebraska
Hardin, Alla	Ft. Dodge, Iowa
Harmon, Lucie, A.B.....	Milwaukee, Wisconsin
Harner, Clyde	Boulder
Harper, Minna	Pine Bluff, Arkansas
Harper, Ola	Winters, Texas
Harris, Roberta Elizabeth.....	Horton, Kansas
Harrison, Adele Hudson, A.B., B.S.....	Tuscaloosa, Alabama
Harrison, Emily	Birmingham, Alabama
Harrison, Katie Belle.....	Tuscaloosa, Alabama
Harrison, Tinsley Randolph, B.S.....	Birmingham, Alabama
Harrison, William Groce, B.Sc., M.D.....	Birmingham, Alabama
Hartwell, Laura Elizabeth.....	Clarks, Nebraska
Hasluck, Alice	Brooklyn, New York
Hawes, Edith May, A.B.....	Wheatland, Wyoming
Hawkins, Annie Josephine, Pd.B.....	Wheatland, Wyoming
Hayden, Carol F., A.B.....	Kansas City, Missouri
Haynie, May Sharp.....	Williamsville, Missouri
Haynie, Nora Virginia.....	Helena, Arkansas
Heaton, Wilbur McKean, Ph.B.....	Pueblo
Heerwald, Paul Samuel, B.Pe.....	Concordia, Missouri
Heerwald, Ruby Frances, Pd.B.....	Weston, Missouri
Helm, Alfred Benjamin.....	Ft. Collins
Henbest, Willa Ophelia.....	Monett, Missouri
Henderson, Barbara	Wichita, Kansas
Hendrickson, Victor James.....	Denver
Henkel, Mary Isabel, B.S.....	Goshen, Indiana
Henley, Ida Jane.....	Muskogee, Oklahoma
Henry, Orian	Boulder
Henselmeier, Frederick William, A.M.....	St. Louis, Missouri
Herald, Lola Elvira.....	Portland, Oregon
Herman, Harry Hirsh.....	Boulder
Hettinger, Ruth	Hutchinson, Kansas
Heuman, Edith Elizabeth.....	Elgin, Illinois
Heuring, Edith Mary, A.B.....	New Harmony, Indiana
Hewitt, Harold Gleason.....	Denver
Hewitt, John Earl, B.S.....	Aspen
Hiatt, Lee Druna.....	Holden, Missouri
Hickox, Frances Catharine, B.S.....	Niagara Falls, New York
Hilderman, Hannah Clara	Sterling
Hill, William Henby.....	Greeley
Hills, Ladonia Alice.....	Vernon, Texas
Hilsabeck, Mary Ellen.....	Holdrege, Nebraska
Hoch, Herman Franklin, Ph.B.....	Webster Groves, Missouri
Hodder, Frederika, A.B.....	Lawrence, Kansas
Hodges, Edna Ellen.....	Wichita, Kansas
Hodgson, Elizabeth, A.M.....	Wichita, Kansas
Hogarth, Mae, L.D.....	Los Angeles, California
Hogue, Lida B.....	Kansas City, Missouri
Holcomb, Janet Lillian.....	Boulder
Hollabaugh, Mona	Vera, Texas
Hollabaugh, Oscar S.....	Vera, Texas
Holmden, Winnifred L.....	College Place, Washington
Holmes, Ruth, A.B.....	Big Spring, Texas
Hopper, Lena Mae.....	Jacksonville, Illinois

NAME	RESIDENCE
Howard, Irene Jane.....	Burrton, Kansas
Howard, Robert Lowe.....	Vermillion, South Dakota
Howden, Thomas Laurence.....	St. Joseph, Missouri
Howe, John Wesley, B.S.....	Hunnewell, Missouri
Howe, William Warren, A.B.....	Pueblo
Hubbell, Anna Margaret.....	Webster Groves, Missouri
Huber, Walter Arthur.....	Scranton, Pennsylvania
Hull, M. Celia.....	Omaha, Nebraska
Hull, Myra Elsie, Pd.B.....	Nickerson, Kansas
Humphrey, Edith.....	Kansas City, Missouri
Humphrey, Lily.....	Canadian, Texas
Humphrys, George Sinclair.....	Hooper
Hunt, Mattie Neva, A.B.....	Boulder
Hutchens, Jewell Lee, Pd.B.....	Warrensburg, Missouri
Hutchinson, Martha, Ph.B.....	Des Moines, Iowa
Hutts, Audrey Lena, B.Pe.....	Miami, Oklahoma
Imboden, Mildred, A.B.....	Wichita, Kansas
Imboden, Ruth, A.B.....	Wichita, Kansas
Ingels, Nelle Louise, A.M.....	Greenville, Illinois
Ingram, Jessie Pearl.....	Birmingham, Alabama
Isaac, Arnold Gerhard.....	Moundridge, Kansas
Isle, Audrey Pearle, A.B.....	Edmond, Oklahoma
Jackson, Ruby Ann, A.B.....	Wichita, Kansas
Jackson, Ruth Olivia, A.B.....	Wichita, Kansas
Jacquot, Marguerite.....	Brunswick, Missouri
Jaegers, Clara.....	Escanaba, Michigan
Jaquette, Mary C., M.D.....	Grand Junction
Jencks, Theo. Henrietta.....	Boulder
Jennings, Winnifred.....	Claremore, Oklahoma
Jensen, Carri.....	St. Paul, Nebraska
Jessup, Andrew Simes, B.S., A.B.....	Central City
Johnson, Audrey, A.B.....	Anson, Texas
Johnson, Frederick William.....	Carey, Texas
Johnson, Icie Florence, Pd.B.....	Warrensburg, Missouri
Johnson, Josephine, Pd.B.....	Warsaw, Missouri
Johnson, Mary Elizabeth.....	Dwight, Kansas
Johnson, Mary Inez.....	Dallas, Texas
Johnson, Nell.....	Childress, Texas
Jones, Clella, A.B.....	Independence, Kansas
Jones, Frank Gordon, Ph.B.....	Marble, Minnesota
Jones, George Bryant, B.S.....	Albuquerque, New Mexico
Jones, Geraldine.....	Gainesville, Texas
Jones, Julia.....	Gainesville, Texas
Jones, Lulu Darrington, A.B.....	Mobile, Alabama
Jones, Lura, A.B.....	Memphis, Texas
Jones, Olive May, A.B.....	Boulder
Joyce, Ruth Anna.....	Central City, Nebraska
Judd, Effa Eve, Pd.B.....	Manzanola
Julian, June Marie.....	Wood River, Nebraska
Kautter, Helen.....	Boulder
Kelley, Ethel Margaret.....	Leavenworth, Kansas
Kellogg, Gladys Josephine.....	Guthrie, Oklahoma
Kelly, Bessie.....	Kansas City, Missouri
Kendall, Claribel, A.M.....	Boulder
Kendall, Florence, A.B.....	Boulder
Kendrick, Edwin Kirkpatrick.....	Kansas City, Kansas
Kendrick, Etta Edith.....	Green Ridge, Missouri
Kercheval, Letha.....	Sheridan, Indiana
Kerr, Charles Irving, A.M.....	Pueblo
Kerrigan, Agnes Cecilia.....	Davenport, Iowa
Key, Ruby Frances.....	Barnard, Missouri
Keys, Kenneth Florence.....	Beloit, Kansas
Kilday, Anne Loretta.....	Sterling, Illinois
Kilgore, Maud Chase, A.B.....	Wichita, Kansas
Kilpatrick, Ruth M.....	Bridgeport, Connecticut

NAME	RESIDENCE
Kindle, Florence Pearl.....	Lebanon, Kansas
King, Bessie B.....	Enid, Oklahoma
King, Maud	Hays, Kansas
King, Scott Judson, A.B.....	Abilene, Texas
Kinkaid, Margaret	Houston, Texas
Kinman, Mable Elizabeth.....	Pleasant Hill, Missouri
Kirketeg, Jennie	Eagle Grove, Iowa
Kirkpatrick, Rosalie Thompson.....	Paris, Texas
Klein, Mayme Cornelia.....	Kansas City, Kansas
Kline, Bertha, A.B.....	Ithaca, New York
Kline, Kathryn La Verne.....	Muskogee, Oklahoma
Knight, George Newton.....	Salina, Kansas
Koch, John Wilbur, A.B.....	Fowler
Koch, Kate Margaret, Pd.B.....	Knob Noster, Missouri
Koehler, Dora	Salina, Kansas
Koehring, Dorothy May.....	Lawrence, Kansas
Kolbe, Anita, A.B.....	Denver
Kresky, Hattie Grace.....	Minneapolis, Kansas
Kretschmar, Arthur Harmon.....	Boulder
Kruckemeyer, Erna, A.B.....	Cincinnati, Ohio
Kurz, Martha	Bowling Green, Missouri
Kyd, Charlotte, Pd.B.....	Green Ridge, Missouri
Kysar, Alta Grace.....	Woodward, Oklahoma
La Falier, Mary Irene.....	Miami, Oklahoma
Lance, Bertha Lois.....	Pittsburg, Kansas
Landers, Joseph Samuel, B.Sc.....	Denver
Lane, Anna	Shelton, Nebraska
Larson, Julia Nardia.....	Scandia, Kansas
Latham, Nina Frances.....	Curtis, Nebraska
Lauder, Archibald, A.B.....	Wyoming, Illinois
Lawrence, Lila Mary	Seattle, Washington
Lay, Louis Preston.....	Knob Noster, Missouri
Layton, Maud	Eureka, Utah
Lee, Mary Eleanor, B.S. in Ed.....	Doniphan, Missouri
Lees, Lottie, A.B.....	Cleburne, Texas
Le Grand, Maude Elizabeth.....	East St. Louis, Illinois
Le May, Daniel, Jr.....	Ft. Russell, Wyoming
Leonard, Leona Pauline, A.B.....	Clarendon, Texas
Leonard, Mary Louise.....	Kansas City, Missouri
Leonard, Mattie Emeline.....	Clarendon, Texas
Letters, Cora Elinore	Crafton, Pennsylvania
Leupold, Arno Karl, B.S. in E.E.....	Albuquerque, New Mexico
Lewis, Emily Westwood, A.B.....	St. Louis, Missouri
Lewis, Lily Del.....	Macomb, Illinois
Lieber, Eva Lettie.....	Hartford City, Indiana
Lindberg, DARTHULA, A.B.....	Boulder
Lindgren, Elsie	Kansas City, Missouri
Logan, Amanda	Lineville, Iowa
Long, Ida Juanita.....	St. John, Kansas
Long, Lora	Vernon, Texas
Lovell, Maye.....	Hillsboro, Texas
Lowe, Frances E.....	Boulder
Lugton, Bess Marguerite.....	Winfield, Kansas
Lyman, Mildred Harriett.....	Boulder
McCormack, Harry Jones.....	Birmingham, Alabama
McCoy, Rose, B.S.....	Wamego, Kansas
McCuskey, Mabel, A.B.....	Boulder
McElwain, Jessie Edna.....	Burrton, Kansas
McEnerney, Lawrence Cornelius.....	Aguiar
McFarland, Burrus	Boulder
McFarland, Frances Grace	Cimarron, Kansas
McGlathery, Sallie	Odessa, Missouri
McGuire, Doretha	Los Angeles, California
McIlvain, Annabel, Pd.B.....	Kearney, Missouri
McKinlay, Beatrice Columbia, A.B.....	White Cloud, Kansas

NAME	RESIDENCE
McMillan, Ethel	Plainview, Texas
McNeil, Gracie May, A.B.	Boulder
McRill, Leslie Anson, A.B.	Guthrie, Oklahoma
MacIntyre, Lillian	Brookline, Massachusetts
MacIntyre, Mary	Brookline, Massachusetts
MacMahan, Christena Marmont.	Waukegan, Illinois
MacMullen, Louise, A.B.	Greenwich, New York
Magee, Viola Alberta, Pd.B.	Green City, Missouri
Mager, Clara May, Pd.B.	Amoret, Missouri
Malsbury, Nellie Clark.	Joplin, Missouri
Manard, Alice	Denver
Manger, Lulu	Coffeyville, Kansas
Manger, Minnie	Coffeyville, Kansas
Markey, Joseph James.	Denver
Markham, Charlotte Beatrice	Pryor, Oklahoma
Marshall, Elma McLean, A.B., B.S. in Ed.	Enid, Oklahoma
Marshall, Elsie Elizabeth.	Clifton, Kansas
Marshall, Frank Hamilton, A.M.	Enid, Oklahoma
Marshall, Maude Waite, A.B.	Enid, Oklahoma
Mateer, Jean Lindsay.	Corpus Christi, Texas
Mattingly, Caroline, A.B.	Washington, Indiana
Mattson, Alma Oliva.	Kansas City, Kansas
Maul, Robert Franz.	Denver
Maupin, Valentine	Gainesville, Texas
May, Mabel	Sioux City, Iowa
Meigs, Isabelle Cameron	Pueblo
Mellinger, Mary Jane	Hutchinson, Kansas
Melton, Lou Alta.	Boulder
Merrill, Louise A., Pd.B.	Denver
Metteer, Gladys Evelyn.	Creighton, Nebraska
Millard, Marie Wilma	Wagoner, Oklahoma
Miller, Alfa, A.B.	Lawrence, Kansas
Miller, Belle V., A.B.	Denver
Miller, Etta Pearl	Blockton, Iowa
Miller, Lucille D.	Aurora, Illinois
Miller, Mary Frances, A.B.	Belton, Texas
Millspaugh, Lucille, A.B.	Winfield, Kansas
Minor, Grace Myrtle.	Bussey, Iowa
Minor, Mabel	Harlan, Iowa
Montague, Alice Cordell, A.B.	Marshall, Missouri
Moon, Christine Florence.	Bussey, Iowa
Moon, Etta C., Pd.B.	Boulder
Moore, Annette	Ft. Dodge, Iowa
Moore, Carrie Black, A.B.	Houston, Texas
Moore, Harold Robert.	Houston, Texas
Moore, William T.	Kansas City, Kansas
Morency, Henry Lloyd.	Sturgis, Michigan
Morgan, Isaac Bowen, A.M.	Kansas City, Kansas
Morgan, Ola Smith.	Canton, Ohio
Morgan, Olive Elizabeth.	Denver
Morgenroth, Elsie Corrinne.	Pittsburgh, Pennsylvania
Morrill, Edgar Lamprey, M.D.	Fort Collins
Morris, Ada, B.A.	Lineville, Iowa
Morris, Clara	Marion, Kansas
Morris, Nelson	Monticello, Arkansas
Morrison, Belle	Kansas City, Missouri
Morrison, William Scott.	Denver
Moss, Ethel Maude, A.B.	Emporia, Kansas
Moss, Leslie Boas.	Dallas, Texas
Mott, Albert, Pd.B.	Purdy, Missouri
Mukish, Emilie	St. Louis, Missouri
Mullin, Grace Elizabeth.	Chicago, Illinois
Murch, Nellie Bate	Boulder
Myers, Lillian Adeline, A.B.	Van Tassell, Wyoming

NAME	RESIDENCE
Myers, Marie	Tulsa, Oklahoma
Myers, Marie M.	Greenville, New Mexico
Neideigh, Freda Mae	Redfield, Iowa
Neighbors, Nell Gray	Waelder, Texas
Nelson, Minnie Belle, A.B.	St. Joseph, Missouri
Neu, Charles Terney, A.M.	Dallas, Texas
Neu, Johnie Marshall, A.B.	Greenville, Texas
Neugebauer, Edna, B.S.	Denver
Newell, Mary Carolle	Butte, Montana
Newkirk, Naomi Kathryn	Sedalia, Missouri
Nikkel, Kate	Alva, Oklahoma
Norman, Zoe, A.B., B.S.	Chickasha, Oklahoma
Norrid, Adda Roache, B.S.	Muskogee, Oklahoma
Norvell, Helen Daniel, A.B.	Gilliam, Missouri
Norvell, March Barton	San Benito, Texas
Nutt, Marian	Montrose
Oakes, Harold Steiner	Denver
Offutt, Mary Bell	Pueblo
Oliver, Mayme, A.B.	Guthrie, Oklahoma
Oliver, Rogers King	Boulder
Olson, Carl Johannes	Quinter, Kansas
Oman, Clinton Howard, A.B.	Garnett, Kansas
Omcirk, Selma	Pine Bluff, Arkansas
O'Neal, Virginia	Bay City, Texas
Orr, Jefferson Harvey	Boulder
Orr, Stella, A.B.	Oswego, Kansas
Ott, Martin D., A.B.	Warrenton, Missouri
Ousley, Clare	Bryon, Texas
Ozenberger, Laura Elizabeth, B.Pe.	St. Joseph, Missouri
Parker, Edna Irene	Bussey, Iowa
Parker, Edwin Theodore	Mobile, Alabama
Parks, Mattie Wade, A.M.	Ft. Worth, Texas
Parr, Curtis, A.B.	Tuscaloosa, Alabama
Parr, Pauline Whiteford, A.B.	Hamilton, Missouri
Paschall, Nannie Ray, B.S.	Dallas, Texas
Patton, Fannie M.	Kansas City, Missouri
Patton, Laura	Kansas City, Missouri
Patton, Ursula, A.M.	Boulder
Paxton, Ollie Bernadetta	Merino
Peart, Lucy Mary, B.Pe.	Webb City, Missouri
Pehlstrom, Ruth Cymbeline	Boulder
Perin, Kate Precosia, A.B.	Cincinnati, Ohio
Perkins, Earl James	Denver
Perry, Ruby Estelle	Pauls Valley, Oklahoma
Peterson, Earl Herman	Sterling
Peterson, Mathilda Carolina	Simpson, Kansas
Pettus, Benjamin Frank	Boulder
Phillips, Anne Winifred, A.B.	Laurel, Mississippi
Phillips, Mary Louise	Laurel, Mississippi
Pierce, Susan Cornelia	De Quoin, Illinois
Pinger, Lulu M., Ph.B.	Leadville
Place, Edwin Bray, A.M.	Boulder
Plank, Celeste	St. Louis, Missouri
Pogue, Della Mabel	Sheridan, Indiana
Pollard, Gurdon Tyler	Pueblo
Pollock, Jennie Elizabeth	Ft. Dodge, Iowa
Pomeroy, Eltweed	New York, New York
Porterfield, Mable	Clyde, Kansas
Porterfield, William Charles, A.B.	Clyde, Kansas
Powell, S.	Chattanooga, Tennessee
Powers, Alice Marion	Denver
Pratt, Ethel May, Pd.B.	Appleton City, Missouri
Pressley, Elizabeth	Des Moines, Iowa
Purdum, Gladys Fern	Macomb, Illinois
Rankin, Geneva	Lincoln, Kansas

NAME	RESIDENCE
Ratcliffe, Blanche Thompson, A.B.	Boulder
Ray, Helen Blanche.	Kansas City, Missouri
Reed, Edward Looman, A.B.	College Station, Texas
Reed, Russell Mulette.	Boulder
Reed, Stanley Morton.	Boulder
Reelhorn, Artie Roy, B.Accts.	La Junta
Rees, Flora Belle, A.B.	Carlisle, Iowa
Reese, Dora Winnifred, A.B.	Corning, Iowa
Reeves, Clementine Challe.	Moberly, Missouri
Reinbach, Edna Anna, A.B.	Topeka, Kansas
Reynolds, Beatrice Dow.	Boulder
Reynolds, Mable Irene.	Lakeview, Michigan
Rice, E. Josephine, A.B.	Brooklyn, New York
Rice, William Robert, B.Pe.	Republic, Missouri
Ricnardson, Wave Marie.	Pueblo
Richert, David Henry, A.B.	Newton, Kansas
Rife, Ina H.	Gibsonburg, Ohio
Roberts, Dora Alta.	Girard, Kansas
Robinson, Bertha McKinney.	Enid, Oklahoma
Robinson, Ina Lee.	Guthrie, Oklahoma
Roe, Herbert N., A.B.	Houston, Texas
Roe, Maurice Alexander.	Boulder
Rohwer, Elsie	Boulder
Root, Loren D.	Hershey, Nebraska
del Rosario, José Maria.	Manila, Philippine Islands
Rose, Clarence William.	Boulder
Rose, Ethel May.	Humboldt, Kansas
Ross, Leslie Truesdale, A.B.	Denver
Ross, Robert Alexander.	Fruitvale
Ross, Sadie Blake.	Bartlesville, Oklahoma
Rundle, Harriet.	Junction City, Kansas
Ryan, Jeanette Isabelle.	Leavenworth, Kansas
Ryan, William Joseph.	Boulder
Salberg, Lillian Ruth.	Boulder
Sanborn, Raleigh	Boulder
Sargent, Eliza Jane.	Smith Center, Kansas
Schaffer, Herold Morritz.	Rochester, New York
Schulte, Norma M.	Pittsburgh, Pennsylvania
Schweer, Mabel Agnes.	Denton, Missouri
Schwiering, Oscar C., A.M.	Cheyenne, Wyoming
Scoggin, W. Dean.	Fort Collins
Scott, Ethel Leota.	Danville, Indiana
Scott, Thelmae Irene.	Mansfield, Ohio
Scouton, Addie Richman, A.B.	Durango
Seat, Vivian Frances, B.Pe.	Denver, Missouri
Severin, Louise Mary.	Kansas City, Missouri
Shallenberger, James K., B.S. in M.E.	Las Cruces, New Mexico
Shaner, Nora D.	Chicago, Illinois
Shaw, Elsie Vale, B.Pe.	Greenfield, Missouri
Shaw, Florence Celeste.	Rocky Ford
Shead, Merle Lillie.	Arcadia, Kansas
Shedd, Helen Porter, A.B.	Joplin, Missouri
Shen, Mung Chin.	Kiukiang, China
Sibbald, Reginald Spaulding.	Boulder
Silberg, Vera.	Spencerville, Indiana
Simmons, Inez.	Tulsa, Oklahoma
Simmons, Irma.	Tulsa, Oklahoma
Simonson, Irwin Dave.	Buena Vista
Slutz, Frank D., A.M.	Pueblo
Smalley, Clarence Eugene, C.E.	Lakefield, Minnesota
Smercheck, Lillian	Boulder
Smick, Caleb William.	Oberlin, Kansas
Smith, Alberta Ione.	Cripple Creek
Smith, Bertha, A.B.	Lennox, South Dakota
Smith, Esther, A.B.	Crete, Nebraska

NAME	RESIDENCE
Smith, Marigold	Muskogee, Oklahoma
Smith, Maude Isabel, A.B.	Norris, Illinois
Smith, Nora Edith	Parsons, Kansas
Smith, Opal	Fowler
Smith, Orma Jacob, B.S., M.S.A.	Caldwell, Idaho
Smith, Ruth	Powell, Wyoming
Smith, Viva R., Pd.B.	Denver
Smith, Willard Arthur	Boulder
Snider, Juliet, A.B.	Ft. Scott, Kansas
Snyder, May, A.B.	Colorado Springs
Solt, Helen	Boulder
Sone, Charles Lemuel, B.S.	Tulia, Texas
Southwick, Helen Louise	Wakefield, Kansas
Sparling, Dora Emma, B.Pe.	Denver
Sprott, Minnie Vee	Cleburne, Texas
Stafford, M. Ellen	Kansas City, Missouri
Stanley, Lulu M.	Carthage, Missouri
Starbuck, Anna Louise	Brownington, Missouri
Stephens, Gertrude David, A.B.	Dallas, Texas
Stevens, Helen K., A.B.	Parsons, Kansas
Stiles, Katharine	Kansas City, Missouri
Stillman, Eugenia Helen	Denver
Stinnett, Mayme Lucile, B.Pe.	Webb City, Missouri
Stofer, Dar Delos	Kansas City, Missouri
Stone, Jessie Ruth	Chicago, Illinois
Stratton, John McKee	Boulder
Struble, June Mildred	Chicago, Illinois
Sullivan, Loretta Mary, A.B.	Sioux City, Iowa
Summerson, Katherine	Kansas City, Missouri
Sutton, Lois Maude, A.B.	Prior Lake, Minnesota
Swan, Katharine	Chicago, Illinois
Swayne, Ida Loyd	Ft. Worth, Texas
Symes, Don Edwin	Harveyville, Kansas
Taft, Elva Edith	Des Moines, Iowa
Tankersley, Ora Lee, A.B.	Quannah, Texas
Tanton, Clarence Ernest, B.Sc.	Salida
Tate, Sue, A.B.	Paris, Illinois
Taul, Edna, B.Pe.	Smithville, Missouri
Taylor, Byrd	Du Quoin, Illinois
Terrien, Myrtle, Pd.B.	Loveland
Terwilliger, Mabel Fern	Boulder
Thomas, Hazel, A.B.	Boulder
Thomas, Mary Alsonia	Kansas City, Kansas
Thomason, Grace	Kearney, Missouri
Thompson, Goree G.	Trinity, Texas
Thompson, Hattie	McLean, Texas
Thompson, Maude	McLean, Texas
Thornburgh, Bertha May, A.B.	Anderson, Indiana
Thumann, Minnie Annie	Cambridge, Nebraska
Tinglof, Birger Olaf Ostergrand	Boulder
Titus, Esbon Yokum, A.M.	Omaha, Nebraska
Toler, Annola	Sharpsburg, Iowa
Tracy, Lillian Mae	Topeka, Kansas
Treadaway, Mozelle	Brownfield, Texas
Trollinger, Lella, Pd.B.	Clinton, Missouri
Trovillion, Beatrice, A.B.	Boulder
Trovillion, Genevieve	Boulder
Unsold, George Peterkin, A.B.	Longmont
Urbain, Lea, A.B.	Du Quoin, Illinois
Vanceave, Dora Mildred	Olney Springs
Vandevere, William Ewing, B.S.	Eden, Mississippi
Vella Vega, Emma Louisa	Omaha, Nebraska
Viers, Vera Velma	Minneapolis, Kansas
Vincent, Hazel Margaret	Mutual, Oklahoma
Vivian, Chauncey Higgins	Golden
Walker, Mary Eugenia	Alexandria, Indiana

NAME	RESIDENCE
Wallbank, Stanley Thomas.....	Chicago, Illinois
Wallis, Chloe.....	Richardson, Texas
Walne, Belle, B.L.....	Dallas, Texas
Walsh, Anna Elizabeth, A.B.....	Corwin, Kansas
Walsh, James Martin, A.B.....	Corwin, Kansas
Walsh, James Paul.....	Denver
Walter, Clara Edith.....	Wakefield, Kansas
Walter, Marjorie Maud.....	Junction City, Kansas
Walter, Mary Ethyl.....	Pueblo
Walton, James Blaine.....	Boulder
Ward, Leon Stevens, A.B.....	Greeley
Wassell, Clara Fownes.....	Pittsburgh, Pennsylvania
Waterbury, Flora Avis, B.S.....	Iowa City, Iowa
Waters, Jane.....	Bonner Springs, Kansas
Wattles, Ruth Jocelyn, A.B.....	Denver
Weaver, Fern Vena, B.S.....	Wakefield, Kansas
Weber, Clarence Adam.....	Boulder
Wells, Olive Jo, A.B.....	Mt. Vernon, New York
Wende, Simon F. T.....	Buffalo, New York
Wetherill, Zenia.....	Des Moines, Iowa
Wheatley, George.....	Boulder
Whinnery, Charles Fuller.....	Lake City
White, Mary Anna.....	Muskogee, Oklahoma
White, Vivian.....	Boulder
Whitney, Caroline Elizabeth.....	San Benito, Texas
Whitney, Mabel Mary, B.Di.....	Alden, Iowa
Whitten, Petrine Charlotte.....	Boulder
Wible, Josephine, A.B.....	Mendon, Illinois
Wiggins, Marie, A.B.....	Oklahoma City, Oklahoma
Wiggins, Nell, A.B.....	Oklahoma City, Oklahoma
Williams, Callie Ann.....	Kansas City, Kansas
Williams, Helen Jackson.....	Streator, Illinois
Williams, May Elizabeth.....	Burton, Kansas
Williamson, Hattie.....	Poplar Bluff, Missouri
Williamson, Robert Vernon, B.S.....	Madison, Wisconsin
Willson, Kenneth Mack.....	Lusk, Wyoming
Wilson, Anna Chrissie, M.E.....	Pittsburgh, Pennsylvania
Wilson, Edith Harriet, A.B.....	Pueblo
Wilson, Ira Carrell, B.Pe.....	Cassville, Missouri
Winans, Henry Morgan, A.B.....	Denver
Winkler, Emily Alva, A.B.....	Claremore, Oklahoma
Winslow, Clinton Ivan.....	Beaver City, Nebraska
Wiscoskie, Hazel Louise.....	Kansas City, Kansas
Wisdom, Belle.....	New York, New York
Witt, Marion Winnifred.....	McGregor, Texas
Wolfe, Jessie Emeline.....	Glenwood, Iowa
Womelsdorf, Bertha Mary.....	Quincy, Illinois
Womelsdorf, Henriette F.....	Quincy, Illinois
Wood, Hettie William, B.S.....	Paris, Texas
Woodrow, Flossie May, B.S.....	Des Moines, Iowa
Woods, Adria Almira.....	Fullerton, Nebraska
Woodward, John Smith, B.S.....	Warrensburg, New York
Wright, John Evan Miles.....	Boulder
Wright, Reppa Frances.....	Alva, Oklahoma
Yarnall, Mamie.....	Carlisle, Iowa
Yates, Josephine Randall.....	Webb City, Missouri
Yates, Lucile.....	Aspen
Yates, Pearl May, A.B.....	King City, Missouri
Young, Edith De Lay, A.B.....	Kansas City, Missouri
Young, Mary.....	Howard, South Dakota
Zehrung, Gertrude Margaret.....	Topeka, Kansas
Zimmerman, Ruby Carroll.....	Hutchinson, Kansas

SUMMARY OF ATTENDANCE, 1916-1917

GRADUATE STUDENTS		70
SCHOOL OF MEDICINE—		
Fourth Year	21	
Third Year	10	
Second Year	29	
First Year	25—	85
SCHOOL OF LAW—		
Third Year	10	
Second Year	20	
First Year	20	
Specials	10—	60
COLLEGE OF LIBERAL ARTS—		
Seniors	88	
Juniors	151	
Sophomores	221	
Freshmen	382	
Specials	27—	869
COLLEGE OF ENGINEERING—		
Seniors	47	
Juniors	71	
Sophomores	83	
Freshmen	127	
Specials	5—	333
COLLEGE OF PHARMACY—		
Fourth Year	3	
Third Year	1	
Second Year	12	
First Year	4	
Specials	1—	21
TRAINING SCHOOL FOR NURSES—		
Third Year	5	
Second Year	5	
First Year	8—	18
SUMMER SESSION, 1916.....		833
		<hr/> 2,289
Deduct for names counted twice (101 of these in 1916 Summer Session)		130
		<hr/> 2,159
Summary		
EXTENSION DIVISION: Department of Instruction, 1916-1917 (including only students in correspondence and classes)		1,366

CLASSIFICATION OF STUDENTS, 1916-1917

(Not including 1916 Summer Session)

BY COLORADO COUNTIES

Adams	9	Las Animas	6
Arapahoe	4	Lincoln	2
Bent	3	Logan	10
*Boulder	422	Mesa	18
Chaffee	8	Mineral	10
Cheyenne	2	Montezuma	2
Clear Creek	11	Montrose	16
Conejos	4	Morgan	19
Costilla	5	Otero	20
Custer	1	Ouray	5
Delta	12	Phillips	1
Denver	360	Pitkin	7
Douglas	4	Prowers	10
Eagle	5	Pueblo	25
Elbert	2	Rio Blanco	7
El Paso	17	Rio Grande	9
Fremont	9	Routt	2
Garfield	13	Saguache	7
Gilpin	5	San Juan	5
Gunnison	8	San Miguel	3
Huerfano	5	Sedgwick	1
Jefferson	12	Summit	5
Kit Carson	3	Teller	12
Lake	16	Washington	1
La Plata	12	Weld	28
Larimer	23	Yuma	4

1,210

BY STATES

Alabama	2	New Mexico	9
Arizona	3	New York	9
California	1	North Dakota	1
Florida	2	Ohio	6
Idaho	4	Oklahoma	9
Illinois	18	Oregon	1
Indiana	3	Pennsylvania	3
Iowa	22	Philippine Islands	8
Kansas	20	South Dakota	4
Kentucky	1	Texas	18
Louisiana	2	Washington	2
Massachusetts	2	West Virginia	2
Michigan	6	Wisconsin	4
Minnesota	2	Wyoming	12
Mississippi	4	Canada	2
Missouri	19	China	1
Montana	1	Denmark	1
Nebraska	10	Germany	1
New Jersey	2		

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GRAND TOTAL1,427

*A large number of students whose names appear in the Catalogue as residents of Boulder County are so catalogued because they temporarily reside in Boulder for the purpose of attending the University.

Year	Grad.	Med.	Law	Arts	Eng.	Phar.	* Training School for Nurses	Summer Session	Prep.	Normal	Grand Total Exc. Dups.	† Exten- sion Division
1877-8	...	...	...	...	...	...	...	...	61	14	75	...
1878-9	...	...	...	12	...	...	...	...	66	...	90	...
1879-80	...	...	...	16	...	...	...	...	67	26	92	...
1880-1	...	...	...	13	...	...	...	...	61	6	81	...
1881-2	...	...	...	17	...	...	...	...	49	9	75	...
1882-3	...	...	...	11	...	...	...	...	54	17	82	...
1883-4	...	1	...	10	...	...	...	...	76	13	100	...
1884-5	...	19	...	22	...	...	...	...	58	...	99	...
1885-6	...	13	...	20	...	...	...	...	55	...	89	...
1886-7	3	5	...	15	...	...	...	...	78	...	101	...
1887-8	2	10	...	25	...	...	...	...	71	20	128	...
1888-9	3	15	...	21	...	...	...	...	73	17	129	...
1889-90	2	23	...	50	...	...	...	...	74	4	153	...
1890-1	...	15	...	55	...	...	...	...	105	...	175	...
1891-2	...	11	...	55	...	...	...	...	103	...	169	...
1892-3	3	26	...	77	...	...	...	...	138	...	286	...
1893-4	5	42	28	85	...	...	...	...	146	...	305	...
1894-5	18	51	19	106	...	...	...	...	192	...	396	...
1895-6	20	59	29	135	22	...	...	...	232	...	509	...
1896-7	29	78	26	162	30	...	...	...	276	...	600	...
1897-8	29	33	39	198	38	...	...	...	273	...	610	...
1898-9	25	50	53	215	61	...	...	...	340	...	700	...
1899-00	22	61	46	252	64	...	...	...	356	...	789	...
1900-1	17	60	62	256	80	...	...	...	367	...	832	...
1901-2	22	63	73	263	103	...	...	...	392	...	862	...
1902-3	19	63	60	269	133	...	...	...	383	...	894	...
1903-4	23	52	62	312	142	...	...	...	383	...	966	...
1904-5	33	53	61	381	173	...	...	...	415	...	1,143	...
1905-6	37	70	62	410	176	...	...	...	504	...	1,308	...
1906-7	38	58	69	473	215	...	...	...	527	...	1,450	...
1907-8	37	58	82	522	221	...	...	...	...	...	1,044	...
1908-9	72	55	105	550	281	...	...	...	...	...	1,128	...
1909-10	83	80	102	577	282	...	...	...	...	...	1,221	...
1910-11	61	152	108	697	292	...	...	...	...	...	1,411	...
1911-12	84	118	126	725	288	...	...	...	...	...	1,474	...
1912-13	70	95	97	671	287	ii	...	...	...	...	1,419	...
1913-14	77	59	82	728	283	22	...	...	...	...	1,559	...
1914-15	96	59	73	825	332	27	...	...	...	...	1,818	440
1915-16	81	81	70	850	317	36	13	...	...	...	2,009	445
1916-17	70	85	60	869	333	21	18	833	...	...	2,159	1,366
	1,082	1,770	1,618	10,960	4,203	117	31	3,880	5,907	132	28,531	2,251

* Listed beginning with change in entrance requirements.
† Including only students in correspondence and classes.

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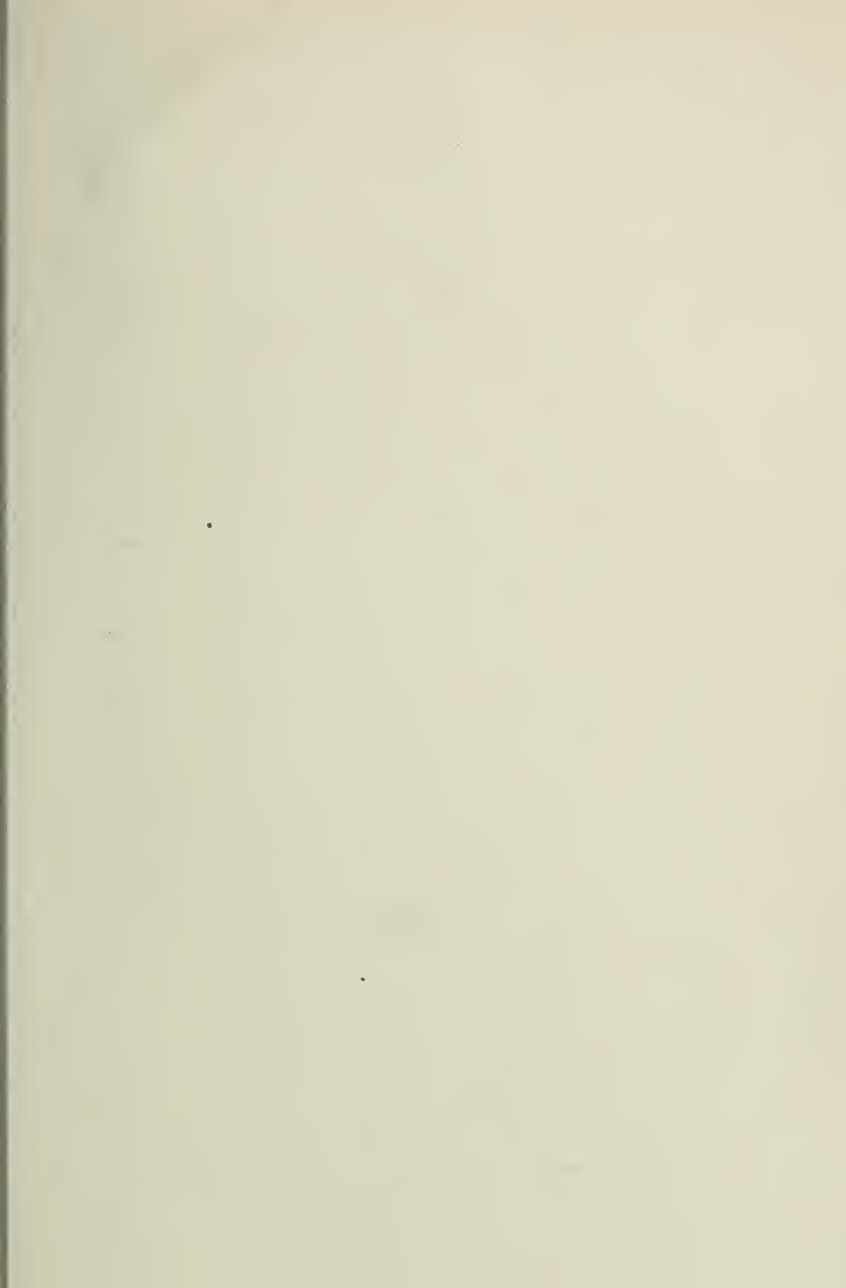
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